VOLUME XXXIV. MAY, 1903. NUMBER 5.

THE AMERICAN
Journal of Dental Science

THIRD SERIES.

The Oldest Dental Magazine in the World. "Information" has been united with this Magazine

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D. D. S., MADISON, WIS., U. S. A.

"Nothing but Teeth"

Flatback, Vulcanite, Diatoric, Combination

DOCTOR:—We make "nothing but teeth," and know the tooth business from A to Z. In translucency, life-like appearance, strength of body, and size of **Platinum** pins **"Pennsylvania" Teeth** are the equal of the highest priced teeth on the market. You can convince yourself that **"Pennsylvania" Teeth** are the best by giving them a trial. If they are not the best teeth you have ever used return them to us at our expense.

Send for our **New Price List.** Cheapness doesn't always mean inferiority, sometimes it means common sense and reasonableness. Insist on getting **"Pennsylvania"** the best tooth on earth.

Pennsylvania Dental Mfg. Co.

Western Depot
126 State St., Chicago

1317 Sansom St.
Philadelphia

RICHARD NELMS **FRANK NELMS**

HENRY NELMS and SON

Manufacturers

..Dental ✻ Golds..

Foils, Plate, Solder Wire, Amalgams, etc.

WE SELL ONLY WHAT
WE MANUFACTURE

❧ ❧ ❧

46 and 48 N. 7th Street,

PHILADELPHIA, PA. **U. S. A.**

Solid Platinoid Crowns With Cusps

We manufacture twenty-five different specialties from Platinoid. SEND FOR CATALOGUE.

They can be used to fill in gold dummies or spaces where gold dummies are required. Solder can be flowed over the cusps, or a very thin piece of gold can be burnished or swaged over them, giving them the appearance of an all gold crown. After the piece is finished it could be gold plated with the many good gold plating fluids that are on the market, making gold plating very simple and lasting.

There are sixteen different molars and sixteen different bicuspids to select from.

Each one is made in three different lengths—**Long, Medium and Short**—as shown in centre of cut. The three on the left, A, B and C, show how they are cut away. Order by number, giving length.

30 Cents Each. All Dealers Keep Them.

Manufactured by MANHATTAN DENTAL CO., 745 Sixth Avenue, New York

TABLE OF CONTENTS.

MAY, 1903.

PAGE

Practical Application of Porcelain—D. O. M. LeCron ... 129

Local Antiseptic: Its Uses and Abuses—F. D. Stalford ... 133

Suppositions, Reflections and Queries G. H. Mathae ... 134

Conservatism in Dentistry—James W. Hall.. 136

PAGE

The Symptoms and Treatment of the Diseased Maxillary Sinus—C. H. House ... 138

A Method of Removing Cemented-in Crown-Pins by Chemical Means—T. L. Pepperling 139

Lysol as an Antiseptic—G. B. Winter ... 139

Abstracts and Clippings ... 140

DR. WOLPERS,

DENTAL PROSTHETIC LABORATORY CO.,

Station U, Chicago, Ill.

We operate a first class modern equipped Dental Laboratory on mechanical and scientific principles, backed by many years' experience and determination to please the most critical practitioner. We are not connected with any other Dental Laboratory and though you may have tried others and been dissatisfied for any cause, you will find in us every inducement a practitioner can reasonably ask for or expect whether he be skeptic or susceptible, and that is *Experience, proper material, best facilities, promptness* and *fair dealing*. Give us a trial.

WRITE FOR PRICE LIST.

"Dental Prostheses" is our new and original illustrated Dental Prosthetic Catalog.
(Copyrighted.)

This useful book contains within its pages some 125 illustrations of the entire line of Prosthetic work brought down to date. The manner of arrangement is such as to instantly appeal to the patient and give them a more comprehensive idea of the work to be undertaken. No Dentist can afford to be without it.

"Dental Prostheses" is mailed free (for the asking), *with your first Laboratory order.*

WRITE FOR OUR PRICE LIST.

CASIMIR WOLPERS, M. D., D. D. S.

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

Offers unequaled facilities for the acquirement of a rough professional education in dentistry.
Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,

Dental Hall, Cor. 33rd and Locust Sts.

BALTIMORE COLLEGE OF
DENTAL SURGERY,

The oldest dental college
in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

PENNSYLVANIA COLLEGE
OF DENTAL SURGERY,
PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903.
Three years graded course in Lectures, Quizzes and Clinics. Women admitted.
For information address

WILBER F. LITCH, M. D., D. D. S., Dean,
507 Walnut St.

Crown Dental Laboratory,
(INCORPORATED.)

Our "Three Graces."

Popular Prices
Excellent Work
Prompt Execution

Trade Mark.

F. A. M. GILLIS,
President.
H. J. SEARS,
Vice-President.
M. V. GILBERT,
Secretary.

H. J. SEARS, Manager.

Exclusively a Dental Laboratory. Conducted on Business Principles. The best of skilled workmen. A specialist in each line.

Write for full information and prices.

CROWN DENTAL LABORATORY,
Floor B. 167 Dearborn St., Chicago, Ill.
The Laboratory that made Chicago Famous. Our work makes our patrons famous.

"THE OLD RELIABLE."

LAWRENCE'S AMALGAM.

RES NON VERBA
A. L.
LAWRENCE
TRADE MARK

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,–2 oz. $5.50,–4 oz. $10,–10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by
AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.
FOR SALE AT THE DENTAL DEPOTS.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Sand-paper Strip Chuck, Cavity Cap Discs, and Capsicum Plasters, and who also carry a general line of Dental Goods at popular prices.

Price of subscriptions, per annum, 50 cents; foreign countries, 75 cents. Lowest advertising rates of any journal. Write for prices. Address

The Teague Dental Supply Co.
Leonard Building, AUGUSTA, GA.

The Best Antiseptic for both Internal and External Use.

LISTERINE

Listerine promptly destroys all odors emanating from diseased gums and teeth, and, by internal use, the foul gases from the stomach—an advantage the dentist will especially value for the relief of nervous dyspepsia during the treatment of the teeth. It is a *perfect tooth and mouth wash*, non-secret and professional, and therefore has received the highest recognition as the best general antiseptic for a dentist's prescription.

"LISTERINE is the strongest and safest of the antiseptics which are available for the prophylactic treatment of the oral cavity."—Miller.

For the patient wearing bridge-work or artificial dentures, and as a daily wash for the preservation of the teeth, Listerine is freely prescribed by many successful practitioners, who are aware that too often the skill of the dentist is questioned when the real cause for dissatisfaction is due to the patient's negligence in properly caring for the teeth and mouth.

"The Dentist's Patient" and "Listerine in Dental Practice," two interesting pamphlets for the dental practitioner, may be had upon application to the manufacturers of Listerine. ☙ ☙ ☙

LAMBERT PHARMACAL COMPANY,
ST. LOUIS, MO., = U. S. A.

"THE IDEAL ADJUVANT."

Dentacura
TRADE MARK

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties,* than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

Samples and literature free. Address

DENTACURA COMPANY
NEWARK, N. J., U. S. A.

THE AMERICAN

Journal of Dental Science.

THIRD SERIES.

THE OLDEST DENTAL MAGAZINE IN THE WORLD.

Wm. Gird Beecroft, D. D. S. - - - **Editor and Publisher**
Madison, Wis., U. S. A.

VOL. XXXIV. MAY, 1903. No. 5.

Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.

Entered as Second Class Matter, Madison, Wis.

PRACTICAL APPLICATION OF PORCELAIN.*

By D. O. M. Le Cron, D.D.S.,
St. Louis, Mo.

The history of porcelain in dentistry had its origin about 1815, when some ingenious Frenchman commenced the manufacture of artificial teeth—unfortunately of very inferior quality as to strength and color. They would check when submitted to the high heat necessary for soldering, and their strength could not stand the force of mastication. This incentive prompted others to follow; and success and failures followed until we have succeeded in accomplishing the desired results. We have today on the market artificial teeth in natural size, shape and color, and also porcelain bodies suitable for all desires of the dentist.

The use of practical porcelain work in dentistry dates from 1846, when Dr. John Allen began the baking of continuous gum work. From that time on a few enthusiastic men have kept incessantly at the development of this branch of dentistry. The reason it has been slow in its development is because it requires more skill in its manipulation than the ordinary dental operations; and the old coke furnace they used for baking required so much time to produce the necessary heat. As time rolled on, the gas furnace took the place of the coke furnace; and many gas and gasoline furnaces are used today. But in time, all will have to come to the use of electric furnaces; and a few years hence, will abandon the coke and gas ovens on account of cleanliness, quick and positive results that can be obtained from the electric oven.

In the past ten years I have experimented more or less with all the gas and electric ovens on the market, and found that the Hammond and Custer ovens are superior in the electric line and they are especially adapted for certain work. To those contemplating going into porcelain work for single crowns and inlays only, I would recommend the Hammond, as you get quicker results; you can bake any of the high fusing bodies in from ten to fifteen minutes, and can also fuse any of the manufactured teeth on same. I have been using the Hammond for the last seven months, and putting it to extreme tests and on various currents (direct and alternating, varying from 104 to 118 volts,) and am yet to have my first accident. It has always responded to the test I have put it to. Of course it has a limit; but with ordinary care, if the muffle is perfect, clay free from iron, etc., it should last for years

If you wish to enter the field in porcelain work more extensively, making bridges and continuous gum work, you will be obliged to get the Custer. It requires much more time to get the required heat to fuse the various bodies taking from 35 to 45 minutes. I have used the Custer for the last five and a half years with good success, and the only objection I have to it is the length of time it requires to get the necessary heat, particularly in crown and inlay work. I also wish to say there is no excuse for any skillful dentist not going into porcelain work if he has electricity. Just recently a gem of a gasoline furnace was put upon the market, and I assure you it will do the work. It is especially adapted for the country and places where electric currents cannot be obtained.

---

*Read before St. Louis Dental Society.

Porcelain dental art embraces four distinct classes of work: Crowns, bridges, inlays, and continuous gum work; all of which present many ways of overcoming disagreeable deformities in an artistic manner.

The requirements for success are many, and those who have given this subject some consideration will be better able to appreciate this fact than those who have yet to make their first attempt. It requires time and experience to become proficient in porcelain work in all its branches. However, with the increased facilities for working porcelain, we are now able to more nearly approach the ideal in this branch of dental art.

The requirements for constructing a crown are similar to those for any style with a band, excepting that all roots must be cut shorter, thus giving as much space as possible for the porcelain, and to get the required strength in the finished crown.

Bands should be of twenty-eight gauge platinum. The floor to the band, which forms the cap, thirty gauge platinum or preferably thirty-two gauge iridio-platinum, that the cap may possess sufficient strength to retain its shape.

In preparing the root, I proceed as follows:

Cut the root down to 1-32 of an inch above the gum margin; then, with enamel cleavers, clip off the sides of root, so that you get your walls parallel to receive the band. On the labial or buccal wall, cut away sufficient to get a thin veneer of porcelain to cover band and to conceal the platinum. When band is adjusted to root, remove same, and cut down root under the margin of gum; replace the band and with a sharp instrument outline the band upon root. Again remove the band, cut to marks indicated, and solder on the diaphragm or floor.

In the preparation of canals for the post, care should be taken to avoid enlarging them any more than is absolutely necessary. I find it well to use a burr or drill one gauge less than the diameter of wire used for post. All posts should be of iridio-platinum in order to be rigid and unyielding, and range from 14 to 18 gauge according to size of root. They should extend into canal a distance equal to the length of the crown, and be passed through the diaphragm far enough to the lingual side so that the end may not interfere with the facing in its adjustment to the cap. The facing is ground and adjusted to cap. The neck should be ground very thin, so as to overlap the cap sufficient to bring that portion in close contact with the gum and to cover the band on the labial surface. Then solder to cap or post, and roughen the surface so the porcelain will adhere. All sharp angles and edges of the metal structure should be rounded off, the porcelain body fusing on it with less cracking and adapting itself more uniformly.

The same general details apply in making bicuspids and molars, only it requires additional metal supports for the mass of porcelain to form the lingual cusps. This is done by simply soldering a vertical bar to the center of the lingual portion of cap, having it extend one-half way to the occlusal edge of facing. (I think there is no more inartistic work done on the natural teeth than crown work as it is commonly done at the present time. I also consider crown work one of the most important parts of porcelain work.) It can be applied to nearly every case where any other crown can, and to a number of cases where other crowns cannot. Any style of crown one chooses to make can be made by a dentist who bakes them himself.

In bridge work, care and judgment must be exercised; if constructed on mechanical principles in all its details, success will follow. You cannot throw it together in a slipshod manner and expect to be successful.

The preparation of abutments is the same as for individual crowns; but great care must be exercised to get them perfectly parallel with each other. I use a "parallel gauge" that I invented some three years ago, and I am always sure that my piers are absolutely parallel, and never have any trouble in placing the bridge in position when it is finished. When the abutments are completed, put them in position; take a sharp impression with plaster and proceed to make your saddle. It should be constructed as narrow as possible and shaped as the natural teeth, also imbedded in the gums about the thickness of 32 gauge plate.

This saddle is quite a mooted point in porcelain bridge work, but the fact that porcelain facings on the ordinary gold bridges are frequently imbedded in the gum in a hap-hazard way without any pathological conditions arising therefrom, has led me to believe that the proper kind of saddle accurately fitted, is much more comfortable to the patient than an open bridge, under which food is constantly collecting; and on the other hand will strengthen the bridge by making it a two-beam bridge, which is certainly stronger than a single one. To get the beam or bar in position (which should be 14 gauge iridio-platinum) first grind the facings, and wax in position; then take impression of same, remove the wax from the teeth, place impression back in place on articulator, and proceed to get the bar in position under the pins of facings.

On an anterior bridge, I get the bar down and as close to facings as possible, so that the body can be carved with proper contour; also the required amount to cover bar.

The work must be very accurate. Always aim to get perfect joints in placing the bar and saddle in position, and solder with 25 per cent. platinum solder. Numerous failures have been experienced by many dentists soldering with pure gold, even if the contact of platinum was perfect. The weight of the bridge causing a tendency to sag when under high heat weakens the joint, with the result that sooner or later, under the force of mastication, the bridge will go to pieces.

Thanks to Dr. Ames of Chicago, for the platinum solder that is on the market today. To his honor is due to a great extent our success in porcelain work.

When soldering with platinum solder, joints can be jumped to a certain extent, and any of the high fusing bodies can be baked on the frame work without sagging. To use the platinum solder, it is necessary to have a compound blowpipe, in which the ordinary illuminating gas flame is combined with a current of nitrous-oxide gas, the combustion of the two gases forms a carbo-oxyhydrogen flame. Dr. Knapp's compound blowpipe is good in most cases if you have a sufficient pressure of illuminating gas. I use one of my own design that will melt platinum quite easily.

I wish here to state that I have experimented with the various facings of the different manufacturers and found the Consolidated and Justi's to give perfect satisfaction in using the high fusing bodies. Just recently S. S. White has placed on sale facings intended specially for porcelain use; they are much superior to their old stock of facings, which have been used so long for crown and bridge work. They fuse at the same degree of heat; and as to strength and texture they seem to be the same. In doing the work I have described, I use high fusing body in all cases. The bodies which fuse at low temperatures owe this quality to glass and mineral matter added to them. Those dentists who are using the low fusing bodies, without question are taking a step backward in porcelain work. In the past I have used Close's body almost exclusively. In nearly all cases it is the most suitable shade for making bicuspid crowns that are made of body entirely. Before using it, however, it is necessary to put it in a mortar and pulverize it much finer. When ground finer it works, carves and fuses to a better advantage and comes out with a beautiful surface. It fuses at from 2300 to 2400° F., and its strength, without question, is far superior to any of the low fusing bodies.

In the last few years, the manufacturers have recognized the fact that porcelain work is not a hobby in the profession, and for their own interest, as well as that of the profession, they are aiming to get a superior high grade body. The Consolidated, Whitley, S. S. White, Johnson & Lund, Brewster and others have high fusing bodies on the market, all of which have their good qualities.

Porcelain fillings or inlays form a part of dentistry, distinctly their own class. We all have cases where teeth can only be saved by continued patching and refilling with cement or gutta-percha. With a knowledge of porcelain inlays, and the means of making them, you can frequently save the tooth, and not be obliged to fall back to the last resort of crowning. This character of work is decidedly different from other kinds and should be practiced with extreme caution. Good judgment cultivated by experience can alone determine the extent to which a decayed or broken down natural tooth may be successfully restored by the method of porcelain inlay. Exceptional skill may succeed to some extent, but there is a practical limit In most cases, I do not think it is advisable to attempt to restore more than one-fourth of a tooth with an inlay, and then only when the pulp is alive. When the pulp is dead and much of the tooth structure gone, I would (except in rare cases) restore with a porcelain crown.

The preparation of a cavity for the reception of porcelain is similar to that which is intended for gold and plastic work, excepting the edges, which must be made sharp and square to allow for a better joint; and no undercut is made until after the filling is completed.

Men of national reputation, such as Land of Detroit, Head and Capon of Philadelphia, and all others follow the same rule in forming cavities for inlays. You must have enough separation to allow for drawing the matrix or impression from cavity without change of form. The matrix or impression must be perfect to meet with good results. The least defect in the matrix will result in a poor filling. It require patience, great care and cleanliness; besides, you will meet with many discouraging things in the practice of this work. You may lose the inlay when all is ready for insertion; it may drop and get stepped on, or the fit may be wretched; but with all this, say to yourself: Others have done this satisfactorily, and I will do it also.

I wish you to understand, I am not over-enthusiastic in inlay work, and confine my work to the eight anterior teeth (mostly on the labial surface) and then only do a certain amount of it when indicated for artistic appearance. I remember the time, only a few years since, when there was as much opposition toward porcelain crowns as there is today against porcelain inlays. The time will come in proportion as our skill develops: then the inlay will take its place permanently in the hands of the skillful dentist.

Dr. Taggart of Chicago (by the way, a pioneer of porcelain bridge work, and I assure you a very artistic one), some seven years ago, at the Illinois State Dental Society, said: "Gentlemen, I predict that porcelain work will be the work of the future." He advised them to begin their experimenting at once, for they would have to come to it sooner or later. I assure you his prophecy has come true; and those who have not taken up this work should not hesitate any longer.

I do not advocate porcelain work in all cases, but where I can use it from an artistic and mechanical standpoint, I never hesitate to do so.

Any dentist who is guilty of putting anything but a porcelain crown on the eight anterior teeth, should be condemned by the profession. What is more hideous than to see a lady with a gold tooth glaring at you? If a dentist is not capable of constructing a porcelan crown, or at least a porcelain faced one, he should hesitate before placing a ready-made gold crown upon the teeth referred to. Too many practicing dentists of today are compelled to depend upon the dental laboratory to make their crowns and bridges, or buy the ready made crowns and palm them off on their innocent patients, on account of the lack of skill and knowledge to make them. No language is strong enough to condemn such work. They are as much at fault in lowering this honorable profession as the deplorable "*quack*" that advertises what he will do and does it, according to the price he gets and his ability to do it.

It is impossible for any dentist to place a ready-made crown or have a dental laboratory manufacture a bridge from a plaster model and successfully put it in position. I must say that I consider any dentist who does that kind of work an imposter of the first water.

In conclusion, porcelain work possesses all the required strength only when enough of it can be used, and then it must be supported by a strong and rigid iridio-platinum frame work. In its place, it is the ideal of "modern dental art" and offers to the profession a large field for demonstrating true mechanical skill; but good judgment must be used in its application.

LOCAL ANAESTHETIC: ITS USES AND ABUSES.*

By F. D. Stalford, D.D.S., Perry, Okla.

Cocain is one anaesthetic used by the dentist ever since the discovery of the anesthetic properties of cocain by Dr. Koeller, of Vienna, and his demonstration of its value before the Ophthalmological Congress at Heidelberg, where he showed that by an application of a 4% solution of cocain to the delicate mucus membrane of the eye such a degree of anaesthesia could be produced that the cutting, pinching and tearing of this membrane was borne without exciting reflex action. It has been shown that the local action of cocain induces a condition of anemia to the parts, due to the contraction of the arterioles, and thus producing anaesthesia; but in dentistry we cannot use it in the same manner as oculists use it in the eye. Dr. Corning has proposed the use of Baunscheidt's needle for puncturing the surface or to secure the passage of the fluid through the tissue by means of cataphoresis, the anode beng placed over the puncture; but we as dentists make use of the hypodermic method of injecting the solution into the gums, thereby producing insensibility and removing teeth without pain. The character of the action of cocain is much influenced by the amount administered, and the several stages of its action differ, because the immediate and primary effect is necessarily opposed to the condition of reaction to restore the normal status. When a sufficiently active dose is given, the first effect is stimulation,—the heart's action is accelerated, the respirations become more frequent, the reflexes respond to a distant irritation more promptly, the mind experiences a grateful sense of well-being and activity. In poisonous doses the respiration becomes shallow and feeble, and if death occurs it is usually by asphyxia. More or less sweating may be produced. After the utility of cocain was first demonstrated, everybody in the profession seemed to go wild over the discovery; and by the indiscriminate use of this valuable drug it soon became a much abused article, resulting in many cases of sudden death in the chair, necrosis of the jaw-bone and pyæmia, so that it soon became necessary to call a halt to its indiscriminate use; but when we look at the reckless way in which it was used, we only wonder why the mortality was not greater. Some have used as high as a 20% solution combined with every drug that could be thought of to counteract the effect of the cocain. The physiological action of the cocain is not yet well understood, but its value as a local anaesthetic and anodyne is beyond question. I have spent some time experimenting with this drug; and during the last eighteen months have been using it as a local anaesthetic, without a single bad result. The formula I have been using is as follows:

Cocain,
Carbolic acid crystals,
Glycerine, c. p.,
Aqua, distilled.

I think all of these have been used at some time with cocain, except glycerin. The reason glycerin is added to the solution is to prevent too rapid absorption of the drug. The reason of so many cases of slough and necrosis following the use of cocain is generally due to the use of old solutions in which fungi have occurred. By the addition of carbolic acid, it makes the solution perfectly sterile. I have used of my formula solutions that were four or five months old, without a bad result.

The many dangers from the use of cocain may occur: First, with those who have an idiosyncracy for the drug, which cannot be foreseen or guarded against; second, it exerts a toxic effect upon the nerve centers, which is conveyed to the heart through the pneumogastric nerve, thereby depressing its action.

My treatment for cocain poisoning is, first, to rouse the heart by inhalations of amyl nitrite pearls; second, give restoratives, such as brandy or whisky, aromatic spirits of ammonia, strychnin, atropin, digitals, hot foot baths and cold drinks; but generally I use a hypodermic injection of morphine, one-half grain.

---

*Read before the Oklahoma Dental Association.

You, no doubt, have used chloreton, but with me, I cannot get the results from it that I do with my cocain anesthetic, and I only use chloreton in cases where the patient is somewhat cyanotic and the finger-nails and lips are blue, showing a weak heart action. In such case I use the following solution of chloreton:

℞ Chloreton ....ʒss.
Sulphuric ether ....ʒij.
Water sufficient to make....℥j.

But in using this solution always wait from three to five minutes until the part has become thoroughly anesthetized. Of all the local anesthetics upon the market to-day which I have tried, I consider these two as the best and most reliable; but for the removing of pulps, sensitive dentin and grinding of sensitive teeth I use the ethyl chlorid spray, with the rubber drawn around the tooth; but never use it to extract teeth, for, as you all know, the physiological action of ethyl chlorid upon the gums, even if the gums are well dried and well painted with vaselin, is to cause sloughing.

SUPPOSITIONS, REFLECTIONS AND QUERIES.*

By G. H. Mathae, D.D.S., St. Louis.

In presenting this paper before you, I would bespeak my convictions and sentiments as they appear to me, not caring to assume any dogmatic air or usurp any authority, but to present facts and suppositions as based upon my observations.

Some two or three months ago I had the pleasure of an interview and visit to a dentist's office in this our great metropolis. While there a patient presented himself with an extensive carcinoma of the superior maxilla, involving the superior left third of the maxilla, the lip and the alae of the nose. He complained of the superior left second bicuspid causing pain. The dentist, making a hurried examination of the case, stated that the tooth was not attacked with any carious lesion; and, after a short talk, dismissed this man. I asked him if he had noticed the involvement of any of the other teeth, or whether he had noticed the affected area of that side of the maxilla. He answered in the negative. This to us, of course, showed a lack of interest in his patient—a lack of observation on his part. Now, we members of the dental profession, claiming so close an association to the medical profession—does it not behoove us to inquire into all such cases, make a careful examination of the tissues involved, whether a tooth, organ or gland of the oral cavity? Should we not take the same interest and exert the same care in examining any lesion of this cavity? Yet how many of us will be careful to note the difficult breathing of the child presented to us with, perhaps, a mouth full of carious teeth or a disfiguring irregularity of the teeth, the malocclusion or lack of lip function? Do we inquire into the condition of our patient's throat? or, better still, do we examine the tonsils, note any adenoids or the like present, and then advise the parents of the necessity of consulting a competent physician to rectify this abnormality, thereby gaining respect and gratitude from our patients for the kindly advice; and when the patient again presents herself, to then see the wonderful change wrought for the better in the development of the nasal regions, and a help to our endeavors in correcting the irregularity of the teeth and arches?

Another thought, that of the saliva: The saliva is admixed with the food taken into the mouth. This passes into the stomach. From this the process of digestion and assimilation takes place, and finally metabolism—the salivary glands, as well as other structures of the body, deriving benefit therefrom. Now, it is an ascertained fact that the tartar (or salivary calculi, as it is termed) is a product of the saliva. This collection of tartar will eventually cause recession of the gums if allowed to remain, or loosening of the teeth. This tartar has come to be looked upon as almost normal; yet in certain individuals there has not been the slightest trace of tartar on any of their teeth, even in some of the most shamefully neglected mouths. The cause of this I am not able to explain; but would not the supposition be that there is some abnormality, and if so, most certainly in the parenchymatous tissue of these organs; that this abnormality (as is my strong conviction) may also be conducive of decay? It has often been stated to our patients suffering with cervico-gingival decay that there is an acid condition present of the stomach causing this decay. Now may it not be possible that it is caused from the saliva? May not the vulnerable or destructible part be hidden in the saliva? I say hidden, for has science as yet been able to isolate the excretion of any of these glands, to note the action of the parotid gland on tooth structure or on food, or the sub-maxillary or sub-lingual? No, it is taken as one, and it is called the ptyalin of the saliva. That, we know, is the potent factor in converting starchy food into grape sugar; and this in turn in the mouth will cause fermentation, and finally lactic acid formation and the breaking down of tooth structure. The prevailing idea is that the points or spaces not accessible to easy cleansing about the teeth are subject to decay. This, I feel, is not always the case. I have observed in many cases of decay that the extreme occluding points of the cusps of the molars (or any tooth, if you please), the part most densely guarded with a heavy coat of enamel, decay; that these points, beyond doubt, are the most easily cleansed and are most self-cleansing, yet why decay? The cervico-gingival region is kept clean by the lips, yet decay takes place there. Why the collection of tartar on the lingual surface of the inferior teeth and the buccal surface of the superior molars and bicuspids? In the lower teeth the tongue is the potent cleansing agent. Can it not be possible that the saliva, which may not be normal at all times, is one of the factors in the causation of decay? that at different periods these glands, stimulated or suppressed by abnormal environments or conditions, such as disease, temper, scare or exhaustion, bring about changes favorable to microbic activity, or when normal preclude this, should we not infer that saliva calculi, collecting on the lingual surface of the lower teeth and the buccal surface of the superior molars, prove to us that possibly the sub-lingual and the parotid glands are the potent factors in the causation of tartar at these points and in general? Supposing this to be the case, could it not be possible that these two glands, being productive of this, may in some cases be potent factors of rheumatism and pyorrhea alveolaris, so-called; the secretion being taken into the stomach with food, etc., and finally, through katabolic changes, be the cause of uric acid collecting on the acticulating surfaces of the bones, thereby causing pain characteristic of rheumatism; and, as so generally said, that patients susceptible to or suffering from rheumatism and gout are generally possessed with the *bete noire* of dentistry, pyorrhea alveolaris? Now, are we not justified in thinking that the saliva in the abnormal changes that may be present at times is the cause of decay, rheumatism and even pyorrhea alveolaris? I have noticed that individuals not suffering from decay were also free from rheumatism, salivary calculi and gingivitis.

---

*Read before the Fraternal Dental Society.

In summing up, I would make a plea for the investigation, examination and thorough analysis of the saliva, and an attempt at isolation of the secretion of each gland; to note their action on food and its character at different periods of excretion —during glandular depression and stimulation. Much was learned from the gunshot wound of the servant of a physician along the line of digestion. Why not seize the opportunity of saliva isolation from some salivary fistula with which we may some day come in contact? and by this examination may we not find the possibility of a natural preventive agent when normal to microbic activity, as the bile is the antiseptic to the lower intestine, or as the leucocytes are to the blood and system, antagonizing the germs that may be present; and when not normal or overcome, we find microbic infection, septacemia and pyemia? That the food taken into the stomach, not being fully insalivated or over insalivated, causes a train of disturbances such as indigestion or improper assimilation, and thereby causing an increase of katabolic changes and a consequent lowering of the resistive power, leaving a victim to microbic infection. I feel so great a conviction about the saliva being the principal factor for good or bad to the teeth because of its close relation to the teeth. Why, if the saliva was merely for food insalivation, were not these glands placed in the gastric or intestinal tract? But their position being in the gateways of the oral cavity, guarding against any foreign or objectionable matter from entering, and if entered will be quickly expectorated, bathed in a media of saliva. So I believe that the saliva is the guardian angel of the teeth; that when in an abnormal condition the teeth will be quickly attacked.

CONSERVATISM IN DENTISTRY.*

By James W. Hull, D. M. D., Kansas City, Mo.

I would blush at my own immodesty did I pose on this occasion to be a leader of conservatism in dental practice. Far be it from my mind. I simply aim to emphasize the thoughts that are daily forced upon us; and I plead with every fiber of my being that the members of this Association will unite in an effort to strengthen the influence of conservatism. The one great barrier that has withheld much consideration from the thinking people of our profession is the reckless, thoughtless, extravagant manner in which the priceless masticating organs have been sacrificed. Dentistry will never, and has no right to ever, reach the zenith of its meridian height until these narrow-minded, dishonest weaklings are forced from their shops of theft, where they openly steal nature's given tooth-structure, which they can never rightly replace. I say dentistry will never fill the high place to which it is destined until in some way this inferior class of practitioners shall have been eliminated, and honest, high-minded, conservative men prove the ruling power. Even we who strive to do the highest class of work are daily confronted with financial encouragement to crown teeth slightly broken down, because of the greater ease than restoring with porcelain or gold. I say this desire to swell our income and lessen our labor must be checked and controlled by the all-absorbing power of conservatism. The great profession of dentistry, like all achievements of hand and brain, must rest upon a foundation. That foundation cannot be smiles or frowns; cannot be wealth or wit; cannot be flambeauant pride or cunning shrewdness. It must be the foundation of conservatism, upon which every true art and science must rest. Measured by whatever standard, the conservative mind stands out the colossal figure of triumphant glory. When we consider that law, government and education took their rise in the conservative brain, and when we remember that the commonwealths of to-day all rest upon the foundation of conservatism, and when we recall that all poetic and literary skill stands clothed in a conservative garb—I say when we see this, should we not learn a lesson and mould a course in our career not unlike theirs? Look over the broad arena of all arts and sciences and see what conservatism has achieved. Above every noble soul hangs a vision for things higher and better, and nothing but a conservative mind can bring them within our reach and force them to aid in our struggle between idealism and stern realities. The conservative mind sticks to his foundation of strength, and is not lured on to an operation of ease at much sacrifice for greater financial gain. It is the tendency of a sophisticated age like the present to overestimate our value in replacing a dental organ, feeling that the crown we make is as valuable in strength and beauty as the natural tooth; and the development of this intellectual gift, making our profession a scientific one, has caused us to be less conservative in the destruction of tooth-structure than when our forefathers of dentistry knew that when the filling failed the tooth was lost. Intelligent conservatism is the one great power that exalts man to his loftiest ideals, and must be cultivated by those who hope to rise by the larger and stronger elements of success; and this can only be accomplished by those who think, for history shows that fame and wealth, luxury, cultivation and leisure—nay, in fact, all the big prizes of life—are obtained by the successful exercise of the intellect. When we look at our profession in this larger and higher sense—I say when our view is not clouded by avarice, passionate greed for financial gain, then we feel that conservatism will be our watchword and beacon-light. Conservatism is the check-rein that halts man and makes him think. It is the indispensable groundword from which all thought must spring. Think one practical thought, and probably save a regret and an irredeemable past. The man who refuses to think might as well be the poor savage on the banks of the Niger, whose soul sits in silence and starves in a silent dungeon. I say you might as well be such as to be the ignorant, thoughtless, vulgar being who poses as a dentist and goes through life without thought, warning or regret. Ignorance is want of mental animation. Scientists tell us that the Patagonian sleeps eighteen hours a day, with a tendency to doze the other six. Their minds are unable to make any kind of a movement; and a chief once said he would talk, but "large ideas made him lazy." So with some men in our profession, who never attend a state meeting or read a journal, prepare a lecture or take any interest whatever. I say it is a burning shame for men who have any brains and reason to be sluggards in the profession, with no enthusiasm to arouse their talent. We cannot hope for their help in strengthening conservative dentistry; but there is a broader, deeper, greater class whom the world shall ever love to honor; and this class will help to make conservatism stronger and more powerful in the dental world. The world calls no man great who is not larger than his profession or occupation, and no man can hope to step beyond the bounds of his office unless he cultivates a love for principle, for honor, for character, for study, for conservatism. Many men have won fame and fortune by the happy exercise of their indubitable gifts, and we to-day have the field to startle some slumbering thought from its quiet dreams. In this age, where we come in contact with those accustomed to the manners of enlightened and progressive civilization, we assume the responsibility of outweighing all weaknesses, failures and shortcomings recognized by the intelligent laymen; and, in order to hold their confidence and respect, must study the most conservative course to pursue. And while we should encourage progress and condemn the man who fails to investigate new principles and new theories, yet this amazing condition of shiftlessness from one method to another must be done in a more conservative way than practiced by some of the would-be leaders of the profession.

---

*Read before the Missouri State Dental Association.

Nature in all her strength and beauty teaches us a lesson in conservatism when she shows her reign of reason and allows no heavy foliage, ripened fruit or orange blossoms rich and rare until the trees on which they shall grow shall have attained sufficient strength to hold them. So the dental practitioner of a less conservative mind should not build or hope for his work to bear fruit until his foundation has been laid, the pathological condition well studied. If not, this beautiful piece of art, the pride of his many hours of honest toil, will have been a failure, a humiliation, a crush as it were to his very soul. The conservative practitioner shows his advantage in strength, dignity and clearness, and is prepared to face a destiny—not always fanned with gentle zephyrs or perfumed with sweetest flowers; but he pushes on, sturdy, courageous and uncomplaining, proving himself to possess the conquering spirit which has made the Anglo-Saxon race the great civilizing force of the age. We can and hope to build a foundation for dentistry that shall permanently stand the inroads of time, although we admit that most things in this life are of temporary, fluctuating nature. Yes, temporary, for even the great king of day, after a few hours of splendor, resigns his throne to night's fair queen. Even the bright and blooming flower lends its fragrance for a day, then fades into nothingness. Man in all his magnificence and power—man, before whom kings have been dethroned and in whose presence empires have trembled—man, who has built ships to sail in foreign seas, and check the mighty lightning in its speed, yet his power is but temporary; for the frost of a few winters changes him back to the feebleness of a child. History shows that nations, like men, rise and fall. You know that Rome, which for so long sat upon her seven hills and from her throne of beauty ruled the world, has long since given way to the ravages of time. We simply cite these facts to show the destructive and ruling power of Father Time. I say we mention these temporary examples in order that proper warning may be given those who hope by conservatism to build a foundation for our profession that shall stand the test of time. Forbid that the day shall ever come when dentistry, now the king of all professions, in that its course is honorable and unhidden, its results pleasing and visible, its place indispensable—I say forbid that the day shall ever come when the pessimistic iconoclast shall have it dethroned and trampled upon; thereby placing a stain upon dentistry, a stain upon civilization and progress that time shall be powerless to efface. Nay, we conservators look to the bright side, as the traveler looks to the north star, and shall keep the guiding light pure and bright high above the horizon.

THE SYMPTOMS AND TREATMENT OF THE DISEASED MAXILLARY SINUS.*

By C. H. House, Newkirk, Okla.

Diseases pertaining to the maxillary sinus and other portions of the oral cavity have received too little attention by the vast majority of dental practitioners. How much better would it be for the patient if he would realize that the dentist knows more about the mouth than the general practitioner. We all know that the maxillary sinus or antrum of Highmore is a comparatively small cavity of great importance. Its position relative to the nose makes it the sounding-board to the voice, giving it resonance in speaking or singing. The most frequent disease of the antrum is an inflammation of its lining membrane. This membrane is a continuation of the Schneiderian membrane of the nose, and any injury of the latter may, by its close relationship, involve the antrum-lining. By way of illustration, a few cases are here reported.

Mrs. R., suffering with a so-called neuralgia in the right side of her face, was sent to me by her physician for examination of her teeth. There were no visible cavities in her teeth; only one small gold filling in the distal surface of the upper first right pre-molar was necessary to insert. For some time past she had been suffering with a tickling sensation in her nose, accompanied by shooting pains. At times the membrane of the nose would become exceedingly dry, and a sharp pain would be felt on pressure in the antral regions. On lying down upon the left side of her face, a watery secretion would occasionally exudate from the nostrils. I advised to douche the nose with the following solution four times daily:

℞ Cocain hydrochl ....gr. ¼.
Pasteurine ....ʒj.
Water ....ʒiij.

Usually the watery secretions that collect in an inflamed antrum will disappear with the other prodramata of empyema, but if it should not, degeneration results and a chronic diseased maxillary sinus will be the consequence.

Sometimes the infandibulum, through which the frontal sinus discharges its secretions, empties into the apex of the antrum instead of the middle meatus of the nose, thus causing a constant irritation. It may also happen that during the effort of removing broken-down roots of molars, one may suddenly disappear while grasping it with the forceps, lodging in the antrum.

One of the most interesting cases I have ever had was that of Mrs. C. She was about 30 years old, and of very nervous temperament. Since she was 15 years old she had a dull pain in the right side of her face, located above the premolars. At times she noted a change in her voice, as if her antrum was filled with water. The upper right second bicuspid, baring a large gold filling, was highly sensitive to heat and cold. I removed the pulp and treated the nostrils as in the case reported above. Pain was only slightly relieved, so I removed the pulps of the first premolar and first molar on the same side. In about three months the patient returned, with much pain, which she located in the second premolar. The tooth was removed, giving relief. Six months later I was called to the home of the lady, finding her suffering intensely. The right side of the face was swollen to twice its normal size, the eye protruding from its socket. The membrane of the nose was dry and cracked. I now diagnosed a chronic diseased maxillary sinus, and advised the extraction of the first molar and the opening of the antrum. As the greatest pain seemed to be located over the first premolar, my patient insisted on removing this tooth. This was accomplishd, but in no way altered the condition. She now realized that no relief could be had without opening the sinus, and finally consented to the operation. Without placing her under the influence of an anesthetic, I removed the first molar, and following the course of its lingual root, opened into the maxillary sinus with a trephine, enlarging this opening to the size of a lead pencil. After draining the sinus, I curretted it thoroughly and washed it with warm salt water. Every day the antrum was syringed alternately with diluted peroxid of hydrogen and Pasteurine. After four months' treatment the sinus was healthy and the opening allowed to close up. A bridge was constructed to fill the place of the lost teeth. It is not necessary to use a drainage-tube for the opening into the antrum: the opening will not close as long as pus is present.

---

*Read before the Oklahoma Dental Society.

A very frequent cause of antrum trouble is traumatism resulting from the careless removal of teeth. Fortunately, the great vascularity of the alveolar walls prevents to a large extent serious consequences. No doubt you all have seen cases where the septa between the molar teeth were removed by exercising an undue force in extracting.

In conclusion, let me say that you should exert all the influence possible to perform operations pertaining to the oral cavity, for who should have a better knowledge of the anatomy of this particular region of the head than the "Doctor of Dental Surgery?"

Clean Flasks.—Put a coil of sheet zinc into the water in the vulcanizer, and it will prevent the formation of the black oxids on the iron flasks, and they will soil the hand but very little.—*British Journal of Dental Science.*

A METHOD OF REMOVING CEMENTED-IN CROWN-PINS BY CHEMICAL MEANS.

By T. L. Pepperling, D.D.S.,
St. Louis, Mo.

The difficulty of removing a crown-pin which has been firmly cemented into a root, without enlarging the root-canal and at the same time do away with the danger of cutting through the side of the root when removing the cement with a burr, led me to try stronger water of ammonia as a solvent for the cement.

Apply the rubber-dam to the root, using a piece large enough to well cover the nose, so as to prevent the patient from inhaling the irritating fumes. Wrap a wisp of cotton about a broach, saturate it with ammonia water and apply it to the cement. As soon as the cement becomes soft, remove it with a sharp-pointed instrument, an old, stiff broach or a root-canal explorer having been found very useful by me. Continue to dissolve and remove all softened particles until the pin is well exposed. All you will then need to do is to take hold of the crown-pin with a pair of pliers and remove it. The length of the operation depends upon the solubility of the cement in ammonia water, usually from one to two hours' time being required. The results have been very gratifying to me.

LYSOL AS AN ANTISEPTIC.*

By G. B. Winter, D.D.S., St. Louis.

Lysol came under my observation about a year ago, and since that time I have devoted some attention to it. Its use has a large field in dentistry, and I think it has taken, to a large extent, the place of carbolic acid. The medicinal agents employed by the dentist are few, and, like the physician, the longer he is in active practice, the fewer remedies he will need. New remedies are often tried, and if they are not superior to the old, are placed back in the corner, never to be used again.

---

*Read before the Fraternal Dental Society.

Lysol is obtained by dissolving the products of fractional distillation of tar-oils, which boils between 190° and 200° C. in fat, and subsequent saponification results. It is a clear, brown, oily liquid, and contains about 50% of cresols. It can be readily mixed with water in all proportions, forming a milky emulsion; while with alcohol, chloroform, glycerin and various other fluids, it forms a clear solution. It is claimed by the makers that lysol is five times stronger than carbolic acid and eight times less poisonous. The mucus membrane is unaffected by the application of a one-half per cent. solution; and though a stronger concentration produces a more or less pronounced sensitive burning, this disappears on the application of a little water. It is an ideal disinfectant, and a very good deodorant.

In treating a chronic alveolar abscess with lysol, the pulp canal is cleansed in the usual way: tepid water is then forced through the abscess, followed with peroxide of hydrogen or some other favorite antiseptic, and finally followed with lysol. It has certain advantages over carbolic acid in this connection: it will not cauterize, and the effect will be far superior over carbolic acid. It is immaterial how much lysol is used through the opening, as it can be readily absorbed by holding a small portion of cotton over the fistulous opening. I immediately fill the root canal after the above treatment, and have had remarkable success.

After a tooth has been extracted, I use a weak solution of lysol on cotton and place this in the socket as an antiseptic precaution. The extraction of any abscessed tooth is generally followed by great pain. I have found lysol to be the ideal remedy in such conditions. Here it is placed undiluted into the socket. It will relieve the pain immediately, help to check the hemorrhage and establish antiseptic conditions in the socket.

Before lysol came to my notice I had a great deal of trouble in keeping the broaches in proper condition. The broach, after it has been used, should be thoroughly cleansed and placed in a small bottle containing undiluted lysol. This will act upon the broach, and if there are any germs present it will destroy them. On account of its oily nature it will prevent the corroding of the instruments. Larger instruments can be very readily sterilized in a boiling one-half per cent. lysol solution; it will not affect the sharp edges nor disintegrate the steel or nickel.

ABSTRACTS AND CLIPPINGS.

Manipulating of Gutta-Percha used for Separating.—If when using gutta-percha for separating purposes the material is softened, it is often difficult to fix it tightly between the teeth. Cut a piece from a sheet and press it into place cold, then smooth and trim into shape with warm burnishers.—R. Ottolengui, in *Independent Practitioner.*

To Obtain Impression for Lower Denture.—Dr. Fount.—Before pressing the tray down on the lower alveolar ridge, direct the patient to raise the tip of tongue to the roof of the mouth. This will draw the lingual muscles from under the tray, while the other muscles will be in normal position. This is particularly desirable in flat mouths.—*Dental Record.*

Duplicating Plaster Models.—E. Mueller.—Mueller, in *Schweizer Vierteljahrsschrift*, gives the following method of duplicating plaster models: Allow about 150 sheets of ordinary gelatin to stand for one or two hours in cold water. It is then cooked and into it from 120 to 150 grams of oil are incorporated. The model is then placed in an enameled vessel, and the mixture is poured over it. After three hours the impression will have hardened, enabling one to make a fac-simile of the plaster model.—*Cosmos.*

Soldering Plate Work.—Edwin Chew.—In soldering plate work, I think it is better to put on all the solder you think necessary at once; have the case well heated all over, so that the solder will flow equally pretty nearly all at the same time. Another thing: to prevent the plate from springing, the joints must fit and the back come down tightly; if you can't get it tight, take pieces and put underneath and in between with a band of iron around the outside, with little staples across that band,

and I'll warrant you it will succeed.—*Items of Interest.*

How to Prevent Silk Ligatures or Rubber Bands from Slipping.—Adapt to the crown a section of thin rubber tubing narrower than the tooth. It is not necessary that this covering should be ligated, but if the tooth is very conical, the tube would have a tendency to shift toward the cervical border. In order to prevent this, the tube is closed at its lower end by means of a silk stitch. As can be readily seen, when the silk ligatures or rubber bands are applied over this covering they will remain in position, the roughness of the rubber sheet preventing them from slipping. With this device it is possible to ligate a tooth at any point of the crown.—*Exchange.*

An Inexpensive Gold-Plating Outfit for Small Work.—Dissolve one-fourth ounce of Potassium Cyanide in two and one-half ounces of pure water in a warm bath. Also fifteen grains of Chloride of Gold in two and one-half ounces of cold water. Mix the two liquids and pour into a glass or porcelain dish. Procure three pieces of insulated copper wire, each sixteen inches in length, and about 22 gauge. Remove two inches of the insulation on each end of the wires. Use two of these for connections with a dry battery, such as are used for hall bells and alarms. To the annode attach a piece of pure gold, and to the cathode the appliance to be plated. Immerse in the plating solution after previously cleansing in a heated solution of Caustic-Potash, followed by a wash of clear water. For this cleansing use the third wire and do not handle the appliance with the fingers. Stir the plating solution occasionally. This outfit complete can be procured for less than one dollar.—B. E. L.

Models.—Neat and accurate models are quite an incentive to make one try to approach the "ideal" in treating cases of malocclusion. It is commonly thought to invert the impressions upon a glass slab, after filling with plaster, in order that a smooth and straight surface may be obtained. But it is also desirable to have this surface parallel with the occlusal surface of the teeth, which adds greatly to their beauty of outline. This can be in a measure controlled when in the act of inverting on the glass, but if the impression was hastily taken, and not introduced properly into the mouth, it also may be out of line, thus complicating matters. To remedy this, we have used a slaugh-cutter with one adjustable blade to great advantage.

This is used on the principle of a carpenter's plane, and any amount of the model may be trimmed down accurately, besides leaving a very smooth surface. After this has been done, use an office knife with fixed blade to chamfer the edges, exposing a surface of about one-sixteenth inch.—B. E. L.

Orthodontia.—After a plain band has been accurately fitted to a tooth and all attachments soldered to same, it is usually desirable to polish it very highly, in order that it may appear as neat and cleanly as possible. It has been customary to do this after the band has been cemented in position on the tooth. We have found it by far more practical to polish the band before cementing if *perfect* results are sought for. To accomplish this, and without altering the shape or form of these delicate bands, gently heat one corner of a piece of modelling compound of generous size, say one inch square, and mold it into the band with the least possible pressure. Then immerse in cold water to harden. It is now ready to polish, for which use a small, double row, stiff brush wheel charged with brick of tripoli. This will immediately remove all oxides and leave a dull, smooth surface. Then use a soft wheel and chalk in the form of a thin paste, allowing the lathe to go at high speed.

If numerous attachments have been added and considerable oxidation took place, or if the soldering was somewhat careless, immerse the band in HCl. for a moment, wash in water, and then polish as described, thus hastening the process. We know of no other substance that will polish German silver as rapidly as brick tripoli. This is also of advantage in cleaning and polishing instruments, both operative and prosthetic, as well as impression trays.—B. E. L.

SETTING CROWNS WITH GUTTA-PERCHA.—When the stage of final fixing is reached and crown and pin dried, the pin is barbed as thoroughly as possible to afford a still better attachment for the gutta-percha, then the crown and pin are warmed and a suitable piece of ordinary pink base plate gutta-percha is heated quite hot in a pair of pliers over a Bunsen burner or alcohol lamp and immersed at once for a second in oil of eucalyptus, after which it is carefully formed around the pin and over the base of the crown and so trimmed as to leave but little more than will be required to fully fill and protect the root.

With this done, the root face and canal are dried with a solution of bichlorid of mercury in ether by the aid of hot air, after which oil of eucalyptus is freely applied in the canal and on the base of the root with a cone of bibulous paper or cotton on a broach. The root is now ready for the crown, which is heated as hot as can be held comfortably in the fingers, when it can be pressed up to place most easily owing to the lubricating effect of the eucalyptus.

It is essential to note, that at this stage, heat is not applied direct to the gutta-percha, but that it is softened by the heat conducted to it by the crown and pin which retain the heat sufficiently long to give plenty of time to get the crown fully to place.

Removing the surplus, which should always exist, with suitable instruments, aided by eucalyptus, completes the operation.—DR. L. J. MITCHELL, in *Dental Review.*

AN EXCELLENT INVESTMENT MATERIAL.—A. P. FELLOWS.—I wish to make mention of a mode of investment which I find very convenient, rapid, and in many respects better than that to which we have been accustomed to use. I make use of it in backing teeth. I usually finish my backing before a piece is completed. I back my tooth with pure gold, 34 gauge, cut off the tooth pins to within a short distance of the backing, with a sharp instrument nick the edges of the pins, and then with a piece of hard or soft rubber swage the backing against the tooth. This will make it conform to the facing, no matter how irregular it may be, and without buckling. The investment is made by soaking a piece of asbestos paper and dipping it in water until it becomes a pulpy muss. The porcelain facing is pressed into the asbestos, and its edges are brought a trifle over the porcelain. I can immediately apply the blowpipe without waiting for it to dry, and in a few minutes have a backing that is hard to excel for closeness. Having flowed upon this pure gold—a 22-carat gold—the entire back of the crown is of the same metal that the balance of the crown is made of.—*International.*

OPEN-FACE CROWN.—A. J. MCDONAGH.—A tube of gold is prepared, fitted and adapted in the mouth. While on the tooth it (the tube) is filled with plaster for an impression. For the next, I have an appliance consisting of a cup of hard vulcanite with a soft rubber base, in which is a hole. The tube is now placed through this hole, allowing just that amount within the cup which extended above the margin of the gum about the tooth. Melotte's metal is poured into the cup, filling the impression and imbedding the edge of the tube within the cup. The cast with the tube is removed and all plaster washed out. Look into the tube from the side farthest from the cutting edge of the cast representing the tooth. Squeeze the tube together till the slit is in line with the cutting edge; place the tube and cast in a vice, ends against the jaws, and tighten the vice sufficiently to hold; with parallel pliers pinch the tube against the cast until it fits perfectly as a fac simile, which can be done in three minutes. Remove, melt out the Melotte's metal, and with a small amount of solder unite the crvice where the cutting edge has been. With a fine saw cut out the face from the crown, which is an exact fac simile of the tooth. Trim off gold, polish, and the crown is finished. All can be done in half an hour.—*Dominion Dental Journal.*

HOW TO MAKE A SEAMLESS GOLD CROWN.—J. P. NICHOL.—The full gold crown is causing considerable comment at the present time, and several "swaging appliances for seamless crowns" have been placed on the market recently. I will state, that this type of crown may be produced absolutely seamless in about half the time it takes to go through the swaging method; there is no danger in splitting the metal in stretching, and a perfect occlusion may also be obtained.

The method, in short, is as follows: Measure the tooth, cut and sweat a band (by sweating, I mean the union of the cut ends by the autogenous method of direct fusion). The contouring may be nicely done with heavy, short-peaked pliers, stretching or bulging the band out to within one-sixteenth of an inch of the cervix, at which point it passes beneath the free margin of the gum.

After shaping the occlusal margin of the band and making proper indentations for the fissures, a cusp is selected or an impression of the occluding tooth used, and by means of a special stamping device a matrix of pure gold about 2-1000 inch gauge is struck up and filled with the same carat gold that the band is made from; the cusp is filled true, making contact with the band at every point, and held in position with binding wire; the joint is fluxed, and with the piece lying on charcoal the band and cusp are united without solder by means of the blowpipe. The result is a seamless crown, in which all danger of discoloration is avoided by the absence of the solder; on the other hand, the sweat-joint in the band is more pliable and is equally as strong as any part of the band.

Even though we grant that the result may be practically the same with either method, the swaging process is defective inasmuch as it fails to develop and maintain that high degree of manipulative skill which it should be the ambition of every operator to attain and conserve; it is the difference between the product of the skilled and artistic workman and the automatic machine.

The porcelain art in dentistry, or the method of baking artificial crowns, etc., is one that is also exciting a great deal of interest among our profession. For single crowns on the ten anterior teeth it would seem that here would be its widest range of usefulness, as it is a question whether it will ever replace the all-gold crown or modification of the same for strength and durability on the molar teeth, certainly not in the very short bite cases, as it is in proportion to the amount of porcelain used in this work that we get the best results in resisting the force of mastication. *International.*

Diagnosis and Surgical Treatment of Empyema of the Maxillary Sinus—W. H. G. Logan, D.D.S., Chicago, Ill. In the paper the essayist referred to the cause of empyema of the maxillary sinus and said that he did not believe that we had direct penetration of septic matter from the dental alveolar abscesses, as often has been claimed, yet that direct penetration of septic matter does occur at times from this cause cannot be denied.

He described the diagnostic symptoms of the disease and advocated the use of the electric light to assist diagnosis.

In regard to the surgical treatment, he believes in a buccal opening on a line with the floor of the antrum.

The objections to operating through the socket of an extracted tooth were enumerated as follows:

1. The frequent needless loss of the tooth.

2. The uncertainty of gaining access to the lowest point of the floor.

3. The liability of missing the sinus entirely and entering the nasal fossa.

4. The removal of the diseased hard and soft tissue is accomplished with more difficulty and made improbable in many cases if the opening is not greater in size than the space occupied by one tooth.

5. An ocular examination of the sinus cannot be made through the ordinary size opening used for the reception of the tube.

The ideal operation to control empyema of the sinus should have the three following points:

1. The opening made large enough to allow an ocular examination.

2. That the position of this opening be such that it will afford the best natural drainage and not demand extraction of any tooth.

3. The employment of some non-irritating method to maintain the original opening until one secures a normal condition of the diseased part by the employment of a gutta-percha plug.

In treating, the parts should be irrigated daily until cured, employing carbolic acid and nitrate of silver solutions, carrying the fluid with a one or two-ounce syringe, forcing the fluid in until it comes through the nose. If the artificial opening is made very large and low enough for perfect drainage, keeping opening open and irrigated regularly, success will crown your efforts.

This paper was given with stereopticon views and was delivered mostly as a lecture. The essayist showed a number of lantern slides made by Dr. Cryer and himself, and showed the possible results of endeavoring to open into the antrum by the usual methods. The essayist advocated making a considerable opening through the alveolus and maxillary plate by raising the cheek tissue. This gave free access for instrumentation and surgical cleanliness and the remedial applications.

The essayist advocated the use of a gutta-percha plug for closing the orifice during treatment. This plug is made of softened gutta-percha to fit the case and is held in place by a wire which extends down to a tooth which has been banded and fitted with a tube to hold the end of the wire.—*Dental Register.*

To Produce Spring Temper in Swiss Broaches.—To draw Swiss broaches to a spring temper, they should be placed on a steel, iron or brass plate one-eighth of an inch thick and about three inches square. This should be held by pliers or forceps over a spirit lamp or Bunsen burner, and be kept continually moving over it, so as to keep the plate heated as uniformly as possible. The broaches should be watched very carefully, and when they become a pigeon-blue color, they should be dropped into cold water.—*International.*

How to Use Cocain for Gums and Pericementum.—I pack powdered crystals of cocain under the free margin of the gum against the pericementum at points where both jaws of the clamp grasp the root and in a minute to a minute and a half I can press the gum away from the margin of the cavity and force the clamp to place with but little or almost no pain to the patient. In this procedure I will add that the rubber dam is applied first, and the hole of the rubber dam encircling the tooth to be thus anesthetized is drawn to one side by the forefinger, enlarging it just enough to expose the edge of the gum, when cocain can be readily packed between the gum and pericementum without the danger of getting it into the mouth and having the saliva carry it to the tongue and throat. Should the cavity be so far beneath the gum as to preclude the possibility of forcing the gum out of the way, I unhesitatingly clamp well on to the gum itself, and dissect away the exposed flap with a sharp spoon excavator, dipping same into a 95 per cent. solution of carbolic acid before using. The acid sears over the edge of the wound, thus inhibiting the action of micro-organisms upon the freshly cut surfaces after the clamp has been removed.—Dr. E. R. Carpenter, in *Review.*

Obtundent for Sensitive Dentin.—The following formula is recommended by Dr. C. N. Pierce:

Cocain	gr. v.
Carbolic acid	gr. xx.
Chloroform	ʒss.
Muriatic acid	gtt. x.
Alcohol	ʒij.

—*Dental Brief.*

Painless Method of Removing a Congested Pulp.—The public is making a serious demand on our profession for "painless dentistry." I mean by this that our patients expect dental operations to be practically painless. By keeping abreast with modern dental therapy we can partially, at least, meet this demand and there is no drug which will serve us better in this regard than cocain where properly used. Better results can be obtained in removing a congested pulp from an anterior tooth by using cocain crystals in the powdered form. The cavity should be dried thoroughly and partially filled with powdered cocain. The pulp can now be punctured with a sharp instrument, letting the serum into the cavity, where it becomes saturated with the powdered cocain, and by pressure can be forced back into the pulp tissue, thoroughly anesthetizing it. When anesthetized in this way it can always be removed without the least pain. If the hemorrhage is not too profuse, it is best to dry the canal and fill at once, care being taken to use sterile instruments. Practically no soreness follows.—J. P. Buckley, *Dental Review.*

Send Postal
and get
Sample
Package by
Return
Mail.

PEERLESS
IMPROVED LINEN FINISHING STRIPS & DISCS MANUFACTURED BY EUGENE SCHENKENBERG, RACINE, WIS.
TRADE MARK

EUGENE SCHENKENBERG

MANUFACTURER OF

Linen Finishing Strips and Disks,

1315 DOUGLAS AVE., RACINE, WIS.

OUR STRIPS ARE MANUFACTURED FROM TEN YEARS' EXPERIENCE.

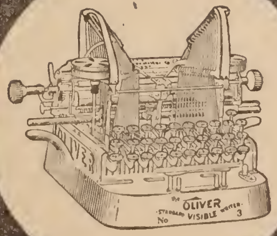
The Irish Linen used in our Strips is imported for our use, and is especially adapted, being very thin, tough and strong.

Particular attention is called to our rouge strips, which are used only for final finishing.

Carborundum, Garnet, Rouge, Flint, Emery, Cuttle, Etc.

The cutting quality of our Strips is a feature, because the grits are scientifically applied, and do not allow the filling to become too hot.

If you cannot obtain our Strips from your salesman I will mail you three packages prepaid upon receipt of one dollar, and Disks at 10c per box, or three for 25c.



THE

OLIVER

The Standard Visible Writer.

If the VISIBLE writing typewriter had been FIRST in the field there would be no sponsor for the blind kind.

The OLIVER does any kind of work for any kind of business and does it perfectly and IN SIGHT.

Art Catalog and Reasons are Free.

THE OLIVER TYPEWRITER CO.,
107-109 Lake St., - - Chicago, Ill.

Other Dentists are familiar with the virtues of

Liquid Powder

SOZODONT

Alkaline Antiseptic Astringent

from critical tests. Why not get into line and give these preparations a thorough trial not only as detergents, but as remedial agents as well. May we not send you samples, analyses and our pamphlet entitled "Sozodont in the Dental Office"? Correspondence invited.

Established 1848

Hall & Ruckel

New York City

Something New in Dental Journalism

The American Dental Journal

beginning with the March number will inaugurate a Progressive Course of Practical Instruction

WE congratulate our readers on their good fortune in having for their writers in this department such men as Drs. Hart J. Goslee, Geo. W. Cook, B. J. Cigrand and R. B. Tuller. An introduction would be superfluous. They are well known. They are all instructors in university schools and will give you of their very best. The key-note of this course will be the word Practical. This course of instruction is designed for the "everyday dentist" in his "everyday practice."

At a meeting of our instructors held January 21st, it was decided to change the name as above and the date to March. The latter was made necessary by the near approach of the Odontographic meeting and the work being done in committees by our writers. All communications to this department should be sent to Dr. G. W. Cook, 47th and Kenwood Ave., Chicago, who will conduct this branch of the American Dental Journal.

Subscription

$1.00 per Year

Send Subscriptions to

FRINK & YOUNG, Publishers,

607-8-9 Masonic Temple,

CHICAGO, - - - U. S. A.

Good Stationery

MEANS SUCCESS

We print entirely from Steel Dies, Copper and Steel Plates and would be pleased to submit Samples and Quotations.

ENGRAVED CAR A

100 Script Engraved Cards, one line, including plate, postpaid, ... $1.25
100 Script Engraved Invitations, 8 or 9 lines, including plate, with outside and inside Envelopes, ... 7.25
Engraving and stock best on market.
Largest House in the World in this line.

The American Embossing Co.,
BUFFALO, NEW YORK

Carborundum Diamond

After you have tried all other finishing strips and disks, send postal card for samples

SUPERIŌR DENTAL FINISHING STRIPS.
Registered August 12, 1902. No. 9364.

They are made by a dentist for the dentist. 35c. per box containing one gross, or three boxes $1.00, and if not just what you want, return them, your money back by return mail.
Made in all grits, widths and the right length, assorted or all of one kind in one box.
This strip is our best product. Honestly made and an honest price.
Our extra coarse strip is a hustler.

SUPERIŌR DISKS Kinds: Cuttle-fish, Carborundum, Emery, Garnet, Sand-paper
All Sizes. 10 cents per box, 12 boxes $1.00
Order from your dental dealer or direct from us.
Remit by money order, cash or stamps.

SUPERIOR DENTAL STRIP CO.,
F. MESSERSCHMITT, D. D. S. 138 MAIN ST., E., ROCHESTER, N. Y.

Samples Free for a Postal Card.

DENTAL RUBBERS

NAMED **SUPERIOR** CLAIMED **SUPERIOR**

Our line of vulcanite, rubber dam, bellows, discs, plaster bowls, tooth polishing cups, discs and points, separating strips, gutta percha stopping, tubing, bulbs, mats, etc.,

CANNOT BE SURPASSED

Eighteen years' standing with the profession. If your depot cannot supply you, write for samples and prices direct to

MORGAN & WRIGHT,
331-339 West Lake Street, Chicago, Ill.

New York Branch: 214-216 West 47th Street.

ADRIAN SPEAR RUTHERFORD

"Low Heat" Modelling Composition, (White or Pink,)

38c per 1-2 pound box.

Base Plate Wax, Sticky Wax and Temporary Stopping.

289 Pleasant Ave., - - New York City, N. Y.

Barker's Porous Polishers for the Lathe and Engine

Best yet produced for any kind of material and all styles of work.

EFFECTIVE. DURABLE. ECONOMICAL.

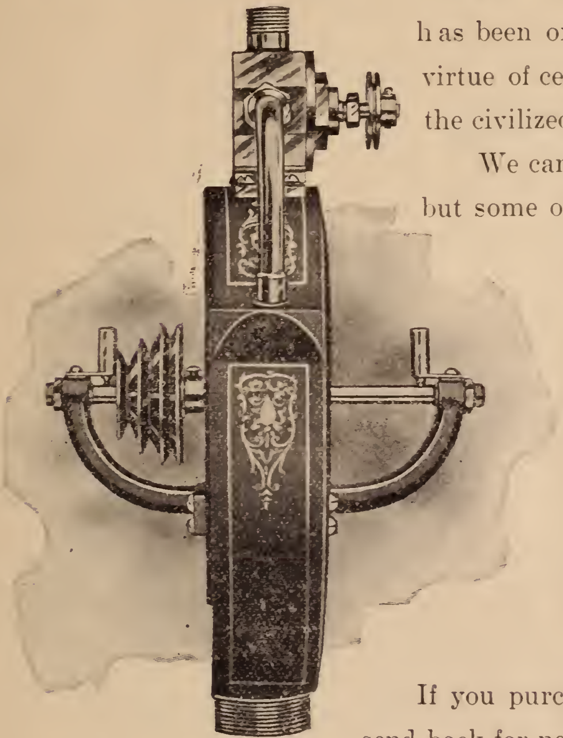
A TRIAL WILL CONVINCE YOU.

PRICES: Lathe Wheels and Cones, single, 15c. Sets of five, 50c.
Engine Points, 1 dozen package, 50c.

TRADE SUPPLIED. ASK YOUR DEALER TO SUPPLY YOU.

W. H. H. BARKER, M. D., D. D. S., Inventor and Sole Manufacturer,
CHICAGO, ILL., U. S. A.

The Sims Hydraulic Engine



has been on the market for several years, and by virtue of certain merits it can now be found in all the civilized countries of the World.

We can only tell you a very little about it here, but some of its principal features are as follows:

The foot switch placed at the back of the chair working in conjunction with the controller of the motor gives the most sensitive and perfect control of the dental engine.

All our motors have hardened steel Ball Bearings and as all the wear is in the end of the motor shaft we do not see how these bearings can ever wear out.

If you purchase our motor you will never have to send back for new boxings and shaft. Nothing could run nicer than the impulse wheels of our motors spinning on a hardened steel ball. This and the perfectly balanced cast brass wheel is the secret of our noiseless running motors.

Our wall bracket and engine head, while very simple, contain all the parts that are necessary. Our engine head will take the S. S. White cable and sheath, or the bracket will take the S. S. White engine head, or any other having a 5—16 in. shank.

OUR LATHE MOTOR

was built for business and it is the one to do the work, and the cut also shows the proper method of connecting up to ee.

We assert that the cheapest and best power equipment for the dental office is one reversible motor connected up at the chair for the engine, and a lathe motor connected up at the lathe for the lathe.

We have just completed a new catalogue and would be pleased to send you a copy. It will tell you all about it.

Sims Hydraulic Engine Co., Lincoln, Nebraska.

Stypticin In Stubborn Local Bleeding

Stypticin is a convenient, effective and prompt hemostatic. Reports from many dentists show that it is not caustic like carbolic or chromic acid; it does not produce foaming as hydrogen peroxide does; nor does Stypticin form blood-clots like the iron preparations and other styptics. It is a vaso-constrictor pure and simple.

> Henry H. Phillips, D. D. S., Cincinnati, Ohio, writes of his experience with Stypticin as follows:—"I must say it acted exactly as others have stated—like magic. I had a patient who had numerous hemorrhages, some of them very severe. The patient's gums were always in a hemorrhagic condition. She often complained of bleeding during the night. I tried numerous styptics, but each in its turn failed. It seemed they would cure for awhile; that is for a day or two. Since I used Stypticin the gums are in a healthy condition. That which I have looked for has been found. The dread of extracting for some people has vanished."

Stypticin is marketed as Powder and in Merck's 3/4 grain Dental Tablets, and is sold by all druggists.

A compilation of interesting reports on Stypticin will be mailed to any dentist on request.

MERCK & CO.,
University Place, - - NEW YORK.

BREWSTER'S

HIGH-FUSING PORCELAIN

THE PORCELAIN USED BY THE LEADING PORCELAIN WORKERS IN THE U. S. AND CANADA

BREWSTER'S Porcelain has been in daily use since 1897, when its Formula was adopted by the leading Porcelain men of the Country.

Whatever Society Clinic you attend you will find Brewster's Porcelain being used: ***Why?*** because the same natural looking results cannot be obtained with any other Porcelain. There is a Translucency and life-like look, peculiar to this material, which the finest operators appreciate.

Men who are not satisfied to benefit by the experience of experts, but prefer to ***buy*** their experience, will probably purchase any outfit that may be recommended to them by an interested dealer; ***and afterwards buy Brewster's.***

Their experience with the first outfit is of little or no benefit to them or their fellow-practitioners, except in so far as it enables them to better appreciate the unique qualities of Brewster's, and add still another to its long list of enthusiastic advocates.

Mr. Brewster will gladly send information upon Porcelain, and the method of using "Colors in Oil" to any one interested whether ordered direct, or through a Dental House.

For Sale by Dental Houses and by the Manufacturers

The Brewster Dental Company

2544 Princeton Ave., CHICAGO

The Brewster Porcelain.

Our Porcelain is so widely used and is supplied through so many channels that we cannot possibly know the names of a tithe of those using it. If your name is not in the following list of users, please send it to us at once, as Mr. Brewster has a sample of something new to send you.

The Brewster Dental Company,

H. M. BREWSTER, Secretary.

Albrecht, T. J., Mayville, Wis.
Amrine, R. C., Rushville, Ill.
Axtel, B. C., Rushville, Ill.
Andrews, G. F., St. Paul, Minn.
Allendorph, E. W., Kansas City, Mo.
Arnold, L. H., Chicago, Ill.
Allen, A. B., Chicago, Ill.
Anderson, C. L., Washington, D. C.
Adams, W. R. Decatur, Ill.
Abell, A. B., Philadelphia, Pa.
Achelpohl, F. H., St. Louis, Mo.
Ambler, H. L., Cincinnati, Ohio.
Ashley, K. P., Kansas City, Mo.
Arthur, H. W., Pittsburg, Pa.
Angle, H. W., St. Louis, Mo.
Abbott, C. E., Franklin, Mass.
Adair, R., Atlanta, Ga.
Booth, L. W., Milwaukee, Wis.
Bryon, W. J. O., Lawrence, Kans.
Bentley, C. E., Chicago, Ill.
Bridges, Josiah S., Chicago, Ill.
Berry, W. M., Chicago, Ill.
Bryant, C. F., Chicago, Ill.
Bryant, Lester, Chicago, Ill.
Barber, L. L., Toledo, Ohio.
Bent, E., Braintree, Mass.
Bowman, C. H., San Francisco, Cal.
Banzhaf, H. L., Milwaukee, Wis.
Babcock, C. E., Milwaukee, Wis.
Beesley, J. H., Bloomington, Ill.
Breene, F. T., Iowa City, Ia.
Burkhardt, F. H., Chicago, Ill.
Baxter, A. H., Philadelphia, Pa.
Bonsall, C. F., Philadelphia, Pa.
Brunet, F. R., Philadelphia, Pa.
Bartlett, W. M., St. Louis, Mo.
Boxton, C., San Francisco, Cal.
Blake, A. E., San Francisco, Cal.
Beale, R. G., Philadelphia, Pa.
Bryant, C. C., Philadelphia, Pa.
Broomell, I. N., Philadelphia, Pa.
Bethel, L. P., Columbus, Ohio.
Barrett, W. C., Buffalo, N. Y.
Buchanan, J. H., New York, N. Y.
Benson, J. H. B., Washington, D. C.
Bartell, J. E., Milwaukee, Wis.
Byram, J. Q., Indianapolis, Ind.
Burne, A. Sidney, New So. Wales.
Barnes, V. E., Cleveland, Ohio.
Berry, W. H., Milwaukee, Wis.
Crandell, W. E., Spencer, Iowa.
Curry, J. A., Streator, Ill.
Cashman, A. V., Racine, Wis
Chaney, Henry M., London, Ohio.
Cutter, H. E., Cambridge, Mass.
Custer, L. E., Dayton, Ohio.
Capon, W. A., Philadelphia, Pa.
Capon, T. J., Toronto, Can.
Callahan, I. R., Cincinnati, Ohio.
Clark, A. B., Honolulu, Hawaii Is.
Clancey, D. W., Cincinnati, Ohio.
Catheral, 8. 6., Duluth, Minn.
Cogan, W. N., Washington, D. C.
Coriell, L. D., Baltimore, Md.
Conkrite, F. P., St. Joseph, Mo.
Casaday, C. B., San Francisco, Cal.
Carlton, H. P., San Francisco, Cal.
Cudworth, W. H., Milwaukee, Wis.
Coons, N. D., Aberdeen, Wash.
Chambers, W. T., Denver, Colo.
Cowardin, L. M., Richmond, Va.
Cheaney, C. Price, Dallas, Tex.
Cunningham, Kansas City, Mo.
Cox, W. G., St. Louis, Mo.
Carmichael, J. P., Milwaukee, Wis.
Cheeseman, F. E., Chicago, Ill.
Cross, M. F., O'Shana, Ont.
Cutting, A. J., Southington, Conn.
Crutcher, T. M., Louisville, Ky.
Crenshaw, Wm., Atlanta, Ga.
Dubeau, Eudore, Montreal, Quebec.
Dellinger, C. E., Baltimore, Md.
Dunbar, L. L., San Francisco, Cal.
Doddard, C. L., San Francisco, Cal.
Dickinson, W. P., Minneapolis, Minn.
Davis, Clyde, Lincoln, Neb.
Davis, L. F., Washington, D. C.
Dolmar, W. H., Philadelphia, Pa.
Dadum, W. E., St. Paul, Minn.
Delbridge, W. H., Greeley, Colo.
Duncan, C. H., Hearne, Tex.
Dale, J. A., Nashville, Tenn.
Darby, E. T., Philadelphia, Pa.
Ely, J. O., Chicago, Ill.
Elliott, G. B., Elgin, Ill.
Eisenstaedt, Chicago, Ill.
Evans, Wm., Chicago, Ill.
Fell, B. M., Doyleston, Pa.
Fisk, F. R., Spokane, Wash.
Foster, W. G., Baltimore, Md.
Foster, M. W., Baltimore, Md.
Fuller, A. H., St. Louis, Mo.
Foster, S. W., Atlanta, Ga.
Flagg, E. M., Philadelphia, Pa.
Fundenberg, W. H., Pittsburg, Pa.
Fletcher, F., San Francisco, Cal.
Ford, C. M., New York, N. Y.
Foster, M. F., Atlanta, Ga.
Frumveller, Edw., Detroit, Mich.
Fowler, C. S., Watertown, N. Y.
Fruth, O. J., St. Louis, Mo.
Foster, W. G., Baltimore, Md.
Freeman, R. R., Nashville, Tenn.
Finney, W. B., Baltimore, Md.
Fletcher, F. F., St. Louis, Mo.
Gareschi, A. J., Victoria, B. C.
Goslee, H. J., Chicago, Ill.
Gebhardt, R. C., Black River Falls Wis.
Gorgas, F. J. S., Baltimore, Md.
Gorman, B. J., Baltimore, Md.
Grant, Indianapolis, Ind.
Grant, W. E., Louisville, Ky.
Gray, J. P., Nashville, Tenn.
Giles, W. J., Montreal, Can.
Gallagher, J. A., New York, N. Y.
Gritman, A. Dewitt, Philadelphia. Pa.
Guilford, S. H., Philadelphia, Pa.
Hooper, A. O., San Jose, Cal.
Hunt, F. M., Des Moines, Ia.
Hazell, E. F., Springfield, Ill.
Huntley, R. L. G., Mason City, Ia.
Haskell, L. P., Chicago, Ill.
Hunt, A. O., Omaha, Neb.
Hare, D. A., Chicago. Ill.
Hiatt, N. W., Marion, Wis.
Harned, M. R., Rockford, Ill.
Hancock, J. E., Chicago, Ill.
Harlan, Houston, Phoenixville, Pa.
Hardy, G. E., Baltimore, Md.
Hoffmeister, Edw., Baltimore, Md.
Hollingsworth, J. G., Baltimore, Md.
Hauselt, C. P., San Francisco, Cal.
Hopkins, R. L., Sterling, Ill.
Hoffmann, C. H., Des Moines, Ia.
Hunt, G. E., Indianapolis, Ind.
Hinckley, B. C., Keokuk, Ia.
Hosford, Wm. S., Iowa City, Ia.
Huber, E. E., Philadelphia, Pa.
Harlan, J. E., Manistee, Mich.

Hicks, H. S., Indianapolis, Ind.
Hacker, T. S., Indianapolis, Ind.
Holmes, M. J., Brookland, D. C.
Howell, S. B., Philadelphia, Pa.
Hodge, L. D., Arkansas City, Kan.
Hermann, A. W., Philadelphia, Pa.
Hofdeinz, R. H., Rochester, N. Y.
Heckard, W. A., Indianapolis, Ind.
Hall, F., Cambridge, Mass.
Hert, B. S., Rochester, N. Y.
Hofard, H. D., Pittsburg, Pa.
Hertz, E. F., Minneapolis, Minn.
Hoff, N. S., Ann Arbor, Mich.
Hunt, G. E., Indianapolis, Ind.
Hillyer, Ellison, New York, N. Y.
Holland, Frank, Atlanta, Ga.
Johnson, A. H., Rochester, N. Y.
Johnson, C. N., Chicago, Ill.
Johnson, A. G., Chicago, Ill.
Jones, E. X., Chicago, Ill.
Jenkins, J. H., Liberty, Mo.
Jeffry, J. A., San Francisco, Cal.
Jackson, H. N., Milwaukee, Wis.
Jones, H. C., Richmond, Va.
Jack, Louis, Philadelphia, Pa.
Knowles, I., Chicago, Ill.
Kelsie, H. E., Baltimore, Md.
Ketcham, D. H., Denver, Colo.
Kennerly, J. H., St. Louis, Mo.
Kirk, E. C., Philadelphia, Pa.
Kretschaan, E. A., Philadelphia, Pa.
Kellogg, A. E., Cresco, Ia.
Keefer, J. B., Portland, Ore.
Kettig, E. M., Louisville, Ky.
Lord, Chas., Colon, Mich.
Le Cron, D. O. M., St. Louis, Mo.
Lodge, E. B., Cleveland, Ohio.
Lancaster, H. N., Chicago, Ill.
Lewis, E. H., Washington, D. C.
Lauderdale, C. F., Milwaukee, Wis.
Letord, J. S., Kansas City, Mo.
Lindsley, C., St. Louis, Mo.
Litch, W. F., Philadelphia, Pa.
Latham, H. E., Philadelphia, Pa.
Lush, F. A., Cincinnati, O.
Morgan, J. B., Davenport, Ia.
Murray, Robert, Buffalo, N. Y.
Major, S. M., Kansas City, Mo.
Metzer, O. J., New York, N. Y.
Montgomery, W. S., Lexington, Ky.
Mallory, F. R., Toronto, Ont.
Millard, W. R., Philadelphia, Pa.
Marshall, M. C., St. Louis, Mo.
Miller, H. C., Portland, Ore.
Morgan, H. W., Nashville, Tenn.
Morgan, D. H., Muskegon, Mich.
Moore, T. E., Columbia, S. C.
Mitchell, G. B., Rochester, N. Y.
Mummery, N. J., Milford, Mich.
Milner, M. B., Baltimore, Md.
Molyneaux, G., Cincinnati, O.
Merrill, C. A., Birmingham, Ala.
Moore, E. C., Detroit, Mich.
McCurdy, J. S., Ft. Wayne, Ind.
McCaudless, A. W., Chicago, Ill.
McElroy, W. Z., Atlanta, Ga.
McMillen, D. J., Kansas City, Mo.
McGehee, W. H. O., Richmond, Va.
McDonagh, A. J., Toronto, Ont.
McLean, W. T., Cincinnati, O.
Neubauer, Frank, San Francisco, Cal.
Nyman, J. E., Chicago, Ill.
Northrup, A. L., New York, N. Y.
Noble, H. D., San Francisco, Cal.
Noel, L. G., Nashville, Tenn.
Nones, R. H., Philadelphia, Pa.
Pfaff, G. J., St. Louis, Mo.
Piper, A. O., Macomb, Ill.
Patterson, T. G., Geneva, Switzerland.
Perry, C. J., Chicago, Ill.
Perry, G. B., Chicago, Ill.
Parr, H. A., New York, N. Y.
Partmentier, H. A., New York, N. Y.
Patterson, J. D., Kansas City, Mo.
Purtell, J. E., Milwaukee, Wis.
Prinz, H. H., St. Louis, Mo.
Pearson, M. W., St. Louis, Mo.
Parker, F. M., Los Angeles, Cal.
Pond, V. S., Boston, Mass.
Piper, J. R., Boston, Mass.
Protdero, Chicago, Ill.
Pearsall, Dublin, Ireland.
Robinson, C. H., Wabasha, Minn.
Rowland, W. T., Bentonville, Ark.
Raiche, F. C., Oshkosh, Wis.
Robinson, E. G., Norwood, Minn.
Rohland, C. B., Alton, Ill.
Roach, F. E., Chicago, Ill.
Register, H. C., Philadelphia, Pa.
Roo, W. R., Philadelphia, Pa.
Reid, H. M., Minneapolis, Minn.
Ross, J. F., Toronto, Ont.
Stith, W. M., Petersburg, Va.
Smith, T. V., Philadelphia, Pa.
Stewart, L. K., Chicago, Ill.
Skinner, F. H., Chicago, Ill.
Small, B. A., Iowa City, Ia.
Sarrazin, J. J., New Orleans, La.
Salter, C. B., Chicago, Ill.
Shultz, E. H., Washington, D. C.
Smith, E. H., Boston, Mass.
Smith, G. J., Baltimore, Md.
Sutherland, J. C., Baltimore, Md.
Skeen, P. A., Texarkana, Tex.
Shidle, G. R., Pittsburg, Pa.
Stilwell, M. H., Philadelphia, Pa.
Salvas, J. C., Philadelphia, Pa.
Smith, H. A., Cincinnati, Ohio.
Smith, H. T., Cincinnati, Ohio.
Steel, C. L., Richmond, Va.
Simpson, G. L., Pittsburg, Pa.
Stubblefield, D. R., Nashville, Tenn.
Smith, E. S., Washington, D. C.
Stern, H. S., San Francisco, Cal.
Spencer, W. R., Vancouver, B. C.
Stephan, L. J., Milwaukee, Wis.
Stoddard, G. E., So. Berwick, Me.
Sharp, W. F., San Francisco, Cal.
Stark, W. T., Kansas City, Mo.
Schaffer, C. A., Iowa City, Ia.
Snow, Geo. B., Buffalo, N. Y.
Sherwood, Jas. A., Buffalo, N. Y.
Taggart, W. H., Chicago, Ill.
Thompson, C. N., Chicago, Ill.
Thomas, G. A., Chicago, Ill.
Tileston, H. B., Louisville, Ky.
Taggart, C. C., Pittsburg, Pa.
Turner, M. E., Atlanta, Ga.
Taft, J., Ann Arbor, Mich.
Thorpe, W. K., Philadelphia, Pa.
Turner, C. R., Richmond, Va.
Taylor, B. S., Washington, D. C.
Truman, Jas., Philadelphia, Pa.
Tees, Ambler, Philadelphia, Pa.
Viberg, R. S., Ft. Wayne, Ind.
Varwig, Geo., Philadelphia, Pa.
Vignes, C. V., New Orleans, La.
Williams, B. M., Las Vegas, N. M.
Woodbury, C. E., Council Bluffs, Ia.
Wikoff, B. D., Chicago, Ill.
Weller, H. D., Indianapolis, Ind.
White, G. A., Santa Barbara, Cal.
Wheelock, J. T., Waterbury, Vt.
Walker, W. W., New York, N. Y.
Wright, P. B., Milwaukee, Wis.
Walker, W. E., New Orleans, La.
Walton, J. R., Washington, D. C.
Wooley, U. G., Brooklyn, N. Y.
Whitstar, W. H., Cleveland, Ohio.
Wellers, J. L., Rochester, N. Y.
Walden, R. C., Richmond, Va.
Willmott, J. B., Toronto, Ont.
Wilson, W. N., Indianapolis, Ind.
Wilbur, C. F., Philadelphia, Pa.
Wycoff, N. N., Trinidad, Colo.
Wettlaufer, C. E., Buffalo, N. Y.
Weber, G. A., Havana, Cuba.
Woodleigh, W. M., San Francisco, Cal.
Weeks, E. B., Litchfield, Minn.
Whidon, D. D., Seattle, Wash.
Williams, W. P., Richmond, Va.
Weiss, O. A., Minneapolis, Minn.
Wilson, G. H., Cleveland, Ohio.
Weiss, F. D., New York, N. Y.
White, J. H., Atlanta, Ga.
Warren, Ger. W., Philadelphia, Pa.
Young, H. N., Wilkesbarre, Pa.
Young, R. C., Atlanta, Ga.

The Brewster Dental Company,

H. M. BREWSTER, *Secretary.*

Brewster's High-Fusing Porcelain

WHEN buying a Porcelain outfit it is well to buy one that has received the endorsement of porcelain experts throughout the country. IT WILL SAVE YOU BOTH MONEY AND DISAPPOINTMENT.

The "Enamel Body" (of which these points are composed) has been repeatedly tested on the Dynamometer and found to register the same resistance to fracture as the best porcelain teeth

BREWSTER'S NEW SHADE GUIDE sent with his outfit of 27 bottles

Price
Outfit Complete
$12.50

Price of 15 Bottle Outfit is $10.00

For dealing with a large variety of shades, this is the most convenient form of Guide yet devised. It is light, compact, composed of nothing but aluminum and porcelain; may be thrown into the sterilizer and boiled. The shades are all in view at once, and by rotating opposite the teeth in the mouth, the correct shade is readily found. The points may be passed between the teeth.

HIGH-FUSING OIL COLORS, for use in Inlay Work, for changing the Color of Facings, Rubber Sets, etc. Write for paper on "Oil Colors" which gives directions for using.

Complete outfit, large size, $8.00
Complete outfit, small size, $5.50

For Sale by Dental Houses and by the Manufacturers

The Brewster Dental Company,

2544 Princeton Avenue, CHICAGO.

VOLUME XXXIV. JUNE, 1903. NUMBER 6.

THE AMERICAN
Journal of Dental Science

THIRD SERIES.

The Oldest Dental Magazine in the World. "Information" has been united with this Magazine

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D. D. S., MADISON, WIS., U. S. A.

"Nothing but Teeth"

Flatback, Vulcanite, Diatoric, Combination

DOCTOR:—We make "nothing but teeth," and know the tooth business from A to Z. In translucency, life-like appearance, strength of body, and size of **Platinum** pins **"Pennsylvania" Teeth** are the equal of the highest priced teeth on the market. You can convince yourself that **"Pennsylvania" Teeth** are the best by giving them a trial. If they are not the best teeth you have ever used return them to us at our expense.

Send for our **New Price List.** Cheapness doesn't always mean inferiority, sometimes it means common sense and reasonableness. Insist on getting **"Pennsylvania"** the best tooth on earth.

Pennsylvania Dental Mfg. Co.

Western Depot
126 State St., Chicago

1317 Sansom St.
Philadelphia

RICHARD NELMS **FRANK NELMS**

HENRY NELMS and SON

Manufacturers

..Dental ✻ Golds..

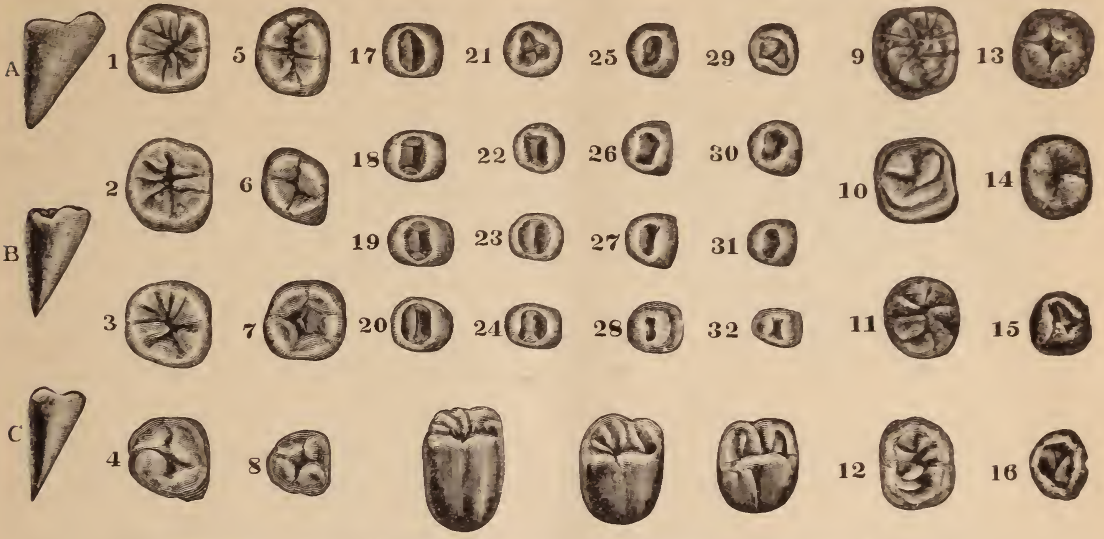
Foils, Plate, Solder Wire, Amalgams, etc.

WE SELL ONLY WHAT
WE MANUFACTURE

46 and 48 N. 7th Street,

PHILADELPHIA, PA. **U. S. A.**

Solid Platinoid Crowns With Cusps



We manufacture twenty-five different specialties from Platinoid. SEND FOR CATALOGUE.

They can be used to fill in gold dummies or spaces where gold dummies are required. Solder can be flowed over the cusps, or a very thin piece of gold can be burnished or swaged over them, giving them the appearance of an all gold crown. After the piece is finished it could be gold plated with the many good gold plating fluids that are on the market, making gold plating very simple and lasting.

There are sixteen different molars and sixteen different bicuspids to select from.

Each one is made in three different lengths—**Long, Medium and Short**—as shown in centre of cut. The three on the left, A, B and C, show how they are cut away. Order by number, giving length.

30 Cents Each. All Dealers Keep Them.

Manufactured by MANHATTAN DENTAL CO., 745 Sixth Avenue, New York

TABLE OF CONTENTS.

JUNE, 1903.

PAGE

The American Journal of Dental Science—William H. Trueman 145

First Dentition—D. D. Atkinson 150

A Few Words About Packing Amalgam in Cavities in the Buccal Surface—E. K. Wedelstaedt 151

Arrangement of Artificial Teeth 153

Fitting Collars to Teeth 154

The Best Filling Material for the Temporary Teeth—John J. Bushe 155

Syphilitic Localosis Alveolaris (Pyorrhoea Alveolaris)—E. Lenox Curtis 155

PAGE

A Treatment of Pulpless Teeth—M. L. Quintin 155

Bridge Re-Cemented Without Removal—E. S. Lawton 156

Facts on Caries 156

Anchoring Inlays. 157

A Branded Logan Crown 157

Practical Points for Busy Dentists 157

Diagnosis in Dental Practice 158

Book Reviews 160

DR. WOLPERS,

DENTAL PROSTHETIC LABORATORY CO.,

Station U, Chicago, Ill.

We operate a first class modern equipped Dental Laboratory on mechanical and scientific principles, backed by many years' experience and determination to please the most critical practitioner. We are not connected with any other Dental Laboratory and though you may have tried others and been dissatisfied for any cause, you will find in us every inducement a practitioner can reasonably ask for or expect whether he be skeptic or susceptible, and that is *Experience, proper material, best facilities, promptness* and *fair dealing*. Give us a trial.

WRITE FOR PRICE LIST.

"Dental Prostheses" is our new and original illustrated Dental Prosthetic Catalog.
(Copyrighted.)

This useful book contains within its pages some 125 illustrations of the entire line of Prosthetic work brought down to date. The manner of arrangement is such as to instantly appeal to the patient and give them a more comprehensive idea of the work to be undertaken. No Dentist can afford to be without it.

"Dental Prostheses" is mailed free (for the asking), *with your first Laboratory order.*

WRITE FOR OUR PRICE LIST.

CASIMIR WOLPERS, M. D., D. D. S.

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

Offers unequaled facilities for the acquirement of a rough professional education in dentistry.
Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,

Dental Hall, Cor. 33rd and Locust Sts.

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY,

PHILADELPHIA, PA.

Forty-Eighto Annual Session opens October, 1903.
Three years graded course in Lectures, Quizzes and Clinics. Women admitted.
For information address

WILBER F. LITCH, M. D., D. D. S., Dean,
507 Walnut St.

Crown Dental Laboratory,

(INCORPORATED.)

Our "Three Graces."

Popular Prices
Excellent W
Prompt Execution

Trade Mark.

F. A. M. GILLIS,
President.
H. J. SEARS,
Vice-President.
M. V. GILBERT,
Secretary.

H. J. SEARS, Manager.

Exclusively a Dental Laboratory. Conducted on Business Principles.. The best of skilled workmen. A specialist in each line.

Write for full information and prices.

CROWN DENTAL LABORATORY,
Floor B. 167 Dearborn St., Chicago, Ill.

The Laboratory that made Chicago Famous. Our work makes our patrons famous.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA Dr. A. LAWRENCE TRADE MARK **AMALGAM.**

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,–2 oz. $5.50,–4 oz. $10,–10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by

AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.

FOR SALE AT THE DENTAL DEPOTS.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Sand-paper Strip Chuck, Cavity Cap Discs, and Capsicum Plasters, and who also carry a general line of Dental Goods at popular prices.

Price of subscriptions, per annum, 50 cents; foreign countries, 75 cents. Lowest advertising rates of any journal. Write for prices. Address

The Teague Dental Supply Co.
Leonard Building, AUGUSTA, GA.

The Best Antiseptic for both Internal and External Use.

LISTERINE

Listerine promptly destroys all odors emanating from diseased gums and teeth, and, by internal use, the foul gases from the stomach—an advantage the dentist will especially value for the relief of nervous dyspepsia during the treatment of the teeth. It is a *perfect tooth and mouth wash,* non-secret and professional, and therefore has received the highest recognition as the best general antiseptic for a dentist's prescription.

"LISTERINE is the strongest and safest of the antiseptics which are available for the prophylactic treatment of the oral cavity."—Miller.

For the patient wearing bridge-work or artificial dentures, and as a daily wash for the preservation of the teeth, Listerine is freely prescribed by many successful practitioners, who are aware that too often the skill of the dentist is questioned when the real cause for dissatisfaction is due to the patient's negligence in properly caring for the teeth and mouth.

"The Dentist's Patient" and "Listerine in Dental Practice," two interesting pamphlets for the dental practitioner, may be had upon application to the manufacturers of Listerine. ❧ ❧ ❧

LAMBERT PHARMACAL COMPANY,
ST. LOUIS, MO., = U. S. A.

"THE IDEAL ADJUVANT."

Dentacura
TRADE MARK

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties,* than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

Samples and literature free. Address

DENTACURA COMPANY
NEWARK, N. J., U. S. A.

THE AMERICAN

Journal of Dental Science.

THIRD SERIES.

THE OLDEST DENTAL MAGAZINE IN THE WORLD.

VOL. XXXIV. JUNE, 1903. No. 6.

EDITOR—Wm. Gird Beecroft, D. D. S., Madison, Wis, U. S. A.
ASSOCIATE EDITOR—John P. Buckley, Ph. G., D. D. S. Chicago.
Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.
Address all communications, both business and editorial, to the editor.
Entered as Second Class Matter, Madison, Wis.

THE AMERICAN JOURNAL OF DENTAL SCIENCE.

By William H. Trueman, Philadelphia.

The latter years of the fourth decade of the last century were eventful ones in the history of Dental Science. For some time the more active members of our profession in this country had felt the need of some means of communicating and comparing the results of experience. They lamented the isolation that existed, and that the only avenue by which such communication could be made was through the medical journals which, while ever ready to receive thankfully well written dental articles, did not reach those for whose information they were intended. Now and again attempts were made to bring about a better state of things. It was not altogether for want of willingness that these attempts did not sooner produce results. Travel was not so easy in those days. It took days where it now takes hours, to pass from city to city, and the mails were infrequent and expensive, so such matters moved slowly.

It is generally recognized that Horace H. Hayden's was the master mind pushing forward the movement, which was rapidly bringing about important results for the advancement of the dental profession. In Chapin A. Harris, young, ambitious, full of energy and thoroughly equipped mentally, he found a very willing and earnest co-worker. In New York, the movement found a number well able and willing to assume the financial burdens. In the spring of 1839, as part of a scheme for professional education then in its experimental stage, an association was formed for the purpose of publishing a dental journal. This association appointed a publishing committee composed of Eleazar Parmly, Elisha Baker and Solyman Brown, who issued under date of June 1st, 1839, an address and prospectus outlining the project. The journal was named "The American Journal of Dental Science" and was to be published monthly; the subscription price was placed at three dollars per annum for a single copy, or two dollars and fifty cents when more than one copy was taken.

The advent of the Journal was announced in the following address of the publishing committee to their professional brethren throughout the United States of America, dated June 1st, 1839.

"Gentlemen:

The period has at length arrived, when the profession to which we belong assumes a commanding position in the public eye, and challenges successful rivalship with other useful and profitable avocations of men. This fact is not less auspicious to society at large, than to the professors of Dental Science, and practitioners of the Dental Art."

"Even the members of the medical profession, so proverbial for their reluctance to encourage innovations in the healing art, are beginning to discover the importance of our co-operation in mitigating the woes, and protracting the duration of human existence. The achievement of this object is to be ascribed to the noble spirit of virtuous enterprise with which the present age is inspired, and which we see displayed in every department of human industry and skill. If this spirit is sometimes developed in excess, as when the splendid steam-vessel, ploughing in majesty the billows of the ocean, is followed by the stupid steam-doctor, digging the graves of his victims on the land, it is nevertheless, the consecrated agency by which the destinies of the world are to be gloriously accomplished, and which already has so far transformed the aspect of society, that, could the man who has slept for the last half century, be awakened from his slumbers, he would hardly recognize the world in which we live, as the place of his original abode."

"These magnificent results, to appreciate which the man of the present day must traverse oceans by the energies of fire, and fly over plains and mountains on the wings of the wind, are the products of human industry, goaded by a restless enterprise, and guided by resistless genius."

"Whether this industry, enterprise and genius, are peculiar to the present age, or whether the existing condition of the sciences and arts is the ultimate result of a series of predisposing causes, which have been operating for ages past, is a matter of little moment. It is quite sufficient for our happiness and mutual congratulation, to know that we live in an age of unparalleled improvement in all that can result from the energies of intellect acting upon material nature, or from the reaction of matter upon the human mind."

"In this condition of civilized man, and of all those arts and sciences which embellish life, imparting to it argumented zest and increased duration, it is our happiness to know that neither the theory, or the practice of the Dental Art, has been left behind the age, either by the incompetency or inactivity of those individuals to whom, in the progress of events, its destiny has been intrusted. If there be any class of men in these States who have 'compassed sea and land,' in the pursuit of usefulness, fame and fortune, braving obloquy, and resisting opposition, enduring fatigue, and despising danger, there are surely among our collaborators who stand in the foremost rank of these benevolent adventurers. Nor have they exerted themselves in vain. Ample fortune and enviable celebrity, have already rewarded the spirited zeal of many laborers in this wide field of professional enterprise; while the improved condition of our art, as regards its salutary influence on society at large, is proof of the justice of the desert which has been munificently rewarded."

"What encouragement, then, is this, to increased exertion in this field of useful labor, and honorable distinction! Who would not prefer to attend these distinguished pioneers in the paths of Dental Science and share their rewards, than to follow the Cæsars and Napoleons of past ages to their fields of blood, and their untimely graves?"

"Presuming that many of those individuals, to whom professional interests this work will be devoted, must feel as we do on the subject of elevating the Dental Science to its deserved position among the callings of men,—and feeling confident that where much has been already done, still more remains to be effected, the Publishing Committee have issued this specimen number of a Monthly Periodical, dedicated to the profession at large, with a perfect conviction of the obvious truth, that by their prompt encouragement or silent neglect, it must either stand or fall. That any other class of our fellow citizens, excepting, perhaps, an inconsiderable portion of the medical profession, will afford the least encouragement to the present undertaking, is beyond our hope. The details of Dental Practice, and even the more sufferable theory of our Art, possesses an absorbing interest chiefly with the more intelligent and ambitious of our own profession; and it is to them, therefore, that we now appeal, by first presenting an expose of our general plan, and then suggesting a few brief considerations to induce our professional brethren to co-operate in our design."

Then followed a long list of particulars giving with much detail the plans and hopes of the publishing committee. Thus was ushered into the world the first Dental Journal.

The first article was a review by Solyman Brown of Chapin A. Harris' first work, entitled, "The Dental Art, a practical treatise on Dental Surgery," really the first edition of his well known and much appreciated "Principles and Practice of Dental Surgery." This was followed by a lengthy extract from a translation of "Delabarre on Second Dentition," by Dr. Harris; an account of a remarkable tooth, by E. Baker; an extraordinary instance of the force of hereditary principle, by Solyman Brown; an announcement that the publishing committee had been tendered the loan of a dental library by Mr. Eleazar Gidney, dentist, of Manchester, England; a remarkable case of osseous union of the teeth, by Eleazar Parmly; an article copied from a medical journal, entitled, "Anatomical Discovery—The Ligamentum Dentist," by J. F. Flagg, of Boston; a catalogue of Mr. Gidney's library, some seventy-six volumes, embracing nearly all the English and French works of note. This first number contained twenty-four pages. Taking it all in all, it is a very creditable production. The second number was paged from 1 to 24, thus duplicating the paging of the first, this was corrected in the third, which began with page 49. The fourth number is embellished with a steel plate portrait of John Greenwood, engraved by the celebrated Roy Peintre, of Paris, whose work is now much sought by collectors. It is copied from a miniature which I have seen, and can say it is as faithful a reproduction of the original as can be rendered in black and white. At the end of this number is a list of subscribers, from which we learn that it had about one hundred and seventy-five subscribers taking five hundred copies. It was, indeed, a very good beginning. The seventh number is of especial interest in that it gives a full account of the organization of the "American Association of Dental Surgeons," (not the first dental society organized, for several local societies preceded it; they were, however, short lived). The American Association was the first to make an impress upon the profession, and to practically demonstrate to dental practitioners the advantage of frequently coming together for the purpose of a mutual interchange of experience. The proceedings of the convention which organized the society, and the society's constitution and by-laws in full, seem to have so enlarged this number that number eight was omitted; numbers nine and ten, and also numbers eleven and twelve were issued together. This completed the volume. None of these numbers were dated. It is not probable that the undertaking was profitable; it was not expected to be. Its friends in New York made themselves responsible for any financial loss of the first year. Beginning with the second volume, the newly organized American Association of Dental Surgeons took charge of the enterprise as part of their work, and Drs. Chapin A. Harris and Solyman Brown were appointed editors.

It was part of the general plan of the publishers of this journal to reproduce from time to time those works which had been considered meritorious exponents of dental science, not as a part of the journal, but in connection with it as separate and complete works, properly paged and indexed for binding apart from the periodical. In carrying out this idea, as the first of a series, appeared "The Natural History of the Human Teeth," by John Hunter, with notes by Eleazar Parmly, embellished with a creditable portrait of Hunter. This was followed by Dr. Brown's "Dentologia, a poem on the Diseases of the Teeth, and Their Proper Remedies." Taking it altogether, the year's work of these progressive members of the dental profession was well done. The journal loses nothing by comparison with other scientific journals of the day, and as the work progressed it is plainly to be seen that it was accomplishing the object for which it was designed. It brought the members of this great profession nearer together, and taught them that it paid to make the results of observation and experience common property. Dentists the world over cannot too highly commend the unselfish devotion of those who voluntarily assumed the financial burdens, the responsibilities, and the unremunerative labor of giving to the world its first dental journal.

Its new owners increased the subscription price to five dollars, and changed its issue to quarterly instead of monthly; the volume, however, contained but a few more pages (304). With the first number appeared a lithograph portrait of Dr. Hayden, from a painting by Rembrant Peale, executed in 1825, and believed to be the only portrait of this distinguished man extant. In the number for September, 1841, is a well executed colored lithograph of the pulp of a bicuspid tooth from a drawing by Mr. Charles Brown, Woolwich, Kent, England, showing a highly congested condition. It is nine inches long, and was drawn, Mr. Brown writes, from the specimen under the microscope. Another well executed colored lithograph illustrates an article on the vascularity of dental bone, by Dr. Chapin A. Harris. A valuable part of this volume is the beginning of a series of articles upon "Mechanical Dentistry," by Dr. Solyman Brown. They were, at the time, well up to date, by a thoroughly practical man, and for some years were the best contribution to that subject in dental literature.

With the new volume, the title was changed to read, "The American Journal and Library of Dental Science." This addition to the title was, however, ddropped at the close of the volume. During the year a treatise on First Dentition, by M. Baumes, translated from the French by Thomas E. Bond, Jr., M.D., and "Principles of Dental Surgery," by Leonard Koecker, M.D., D.D.S., embellished with his portrait, were published as part of the Library.

The third volume was edited by Drs. Chapin A. Harris, Solyman Brown, and Leonard Mackall. It was embellished by portraits of Dr. Eleazar Parmly, and Mr. Alexander Nasmyth. Among the notable contributions are five articles by Dr. Brown, completing his work upon "Mechanical Dentistry"; a list of officers and members of the American Society of Dental Surgeons, and a "Dissertation on the Maxillary Sinus," by Dr. Chapin A. Harris. A treatise on "Diseases of the Mouth," by J. B. Gariot, translated from the French by Dr. J. B. Savier, and "Researches on the Development, Structure, and Diseases of the Teeth," by Alexander Nasmyth, were added to the library.

On the editorial staff of the fourth volume, Dr. Maynard replaced Dr. Mackall. In this volume, page 221, will be found an extended obituary of Dr. H. H. Hayden, who closed his very useful and profitable life Friday, January 26, 1844, aged 75 years. The works of Thomas Berdmore, and David Wemyss Jobson accompanied its publication.

With the fifth volume, Dr. Amos Westcott replaced Dr. Brown on the editorial staff. The proceedings of a Convention of Professional Dentists, held at Cincinnati, August 13 and 14, 1844, which organized the Mississippi Valley Association of Dental Surgeons, are reported on page 112. This was a notable association from the fact that it was the first to celebrate its golden anniversary. After a little more than fifty years of excellent work it ceased to exist, owing to changes within its bailiwick making a different arrangement of society activity expedient.

It will be new to some to know that a law to regulate the practice of dental surgery in the state of Alabama was passed and approved December 31, 1841; it is found on page 248 of this volume, and is well worth reading. A translation of Lefoulon's Theory and Practice of Dental Surgery, by Dr. Thomas E. Bond, was added to the library, and an excellent work it is.

The same editorial staff served the sixth volume. This volume announces the advent of another notable dental society which has proved long lived. On page 208 is reported the "Transactions of a convention," held at Philadelphia, which organized the Pennsylvania Association of Dental Surgeons, December 15, 1845, a society which still exists, and will shortly hold its fifty-eighth annual meeting. It has continued its meetings regularly during that long period, and is today stronger in membership than ever before. With this volume appeared as additions to the library, "A Treatise of Second Dentition," by C. F. Delabarre, translated from the French by Dr. Chapin A. Harris; "A Few Facts Connected with the Teeth," by Mr. George Waite, Surgeon Dentist, England; "Anatomy of the Dental System," by Ph. Fr. Blandin, translated from the French by Dr. Robert Arthur.

Dr. Harris, Dr. Westcott, and Mr. Edwin J. Dunning edited the seventh volume. With this volume, and part of it, was published "The teeth a test of age, considered with reference of the Factory Children," by Edwin Saunders, D.D.S., of London. This work had appeared a few years previously, shortly after the British Parliament had passed an act forbidding the employment of children in factories under a certain age. The cupidity of parents led to false statements regarding the age of many children so employed. It was to counteract this that Mr. Saunders undertook the investigation which resulted in this work. While very interesting, it is questionable whether it had any practical value in correcting the evil. As it was during the publication of this volume that Dr. Morton demonstrated the value of ether in surgical operations, we find it referred to in several articles, but it has less space accorded it than such an important discovery should merit. This was due, no doubt, to the manner in which it was announced. It may surprise many to know that it was not used in many large and well regulated hospitals until long after the demonstration at Boston. Ethics had much to do with this apparent neglect of a valuable means of aleviating human suffering. The volume was enlarged to 400 pages. The library contribution was the excellent work by Desirabode, "Elements of the Science and Art of the Dentist," translated by Dr. Harris.

With volume eight, Dr. William H. Dwinnelle replaced Mr. Dunning as coeditor. On page 147 is a paper read before the Medico-Chirurgical Society of Edinburgh, by Dr. J. Y. Simpson, in which he announces his discovery that chloroform is a better agent than ether for producing insensibility during surgical operations. In this volume may also be found several interesting articles upon ether. To the library was added Blake's "Structure and Formation of the Teeth in Man and Animals," a notable book in its day, but hardly worth republication half a century later.

The editors remained the same for the ninth volume. The volume is made up of useful articles treating of questions of the day. The library contributed the treatise on "Diseases and Surgical Operations of the Mouth and Parts Adjacent," by M. Jourdain, the first work in dental literature upon Oral surgery, published at Paris in two volumes, 1778. The translation was made by Dr. P. H. Austen, of Baltimore, although his name does not appear on the title page.

The tenth and last volume of the first series was edited by the same staff. With it was published the last contribution to the library, A Practical Treatise on Dental Medicine, by Dr. Thomas E. Bond, the only one of the series that was original. That it still continues to be an acceptable text book in dental colleges, revised and enlarged to keep in touch with the advances the science has made, is sufficient proof that Dr. Bond's foundation work was well done.

About August, 1850, the journal passed into the hands of Dr. Chapin A. Harris, who became its proprietor and editor. The first number of the first volume of a new series is dated October, 1850. It remained a quarterly. The republication of dental works was discontinued, but the journal was enlarged to 571 pages. It required a great deal of courage to shoulder, unaided and alone, the responsibilities of publishing a journal that had not paid its way, but had each year presented to its publishers a deficiency instead of a profit. It is not probable that it proved a "paying" investment to Dr. Harris. Shortly after assuming its publication, Dr. Alfred A. Blandy assisted in the editorial work. With the fourth volume, Dr. A. Snowden Piggot was added to the editorial force. From the sixth volume to the close of the publication by the death of Dr. Harris September 29, 1860, Drs. Harris and Piggot were the editors. The last number of the tenth volume closed the new or second series. These ten volumes reached high water mark in dental journalism. There was about them a stateliness and dignity, a professional tone and a scholarship that have not been excelled. The twenty volumes published by dentists for dentists, apart, uncontrolled and unaided by trade or business concerns, have a place of honor among dental journals none have invaded. It is not to the credit of the profession, however, that they were, from first to last, published at a financial loss.

May, 1867, Snowden and Cowman, dental dealers of Baltimore, began a monthly dental journal under the same name, as a third series, with Drs. Piggot and F. J. S. Gorgas, editors. While it was considered by its publishers as a continuation of the old journal, it had nothing with it in common except the name.

It was a trade journal. It undoubtedly filled an acceptable place in dental literature, but can hardly be considerd as occupying a front rank. With the third volume Dr. Gorgas became sole editor, and so continued until the twenty-fifth volume, when he was joined by Dr. Richard Grady. After the publication of the third number of the thirty-fourth volume, July, 1900, the firm of Snowden and Cowman became financially embarrassed and passed out of existence.

FIRST DENTITION.

D. D. Atkinson, Brunswick, Ga.

There is no more critical period in the human life than when deciduous teeth are about to be erupted. It is a period to be dreaded by those who are to have the responsibility of raising children. Consider for a moment the conditions which prevail and the serious import of the process will be apparent.

This is a formative period with the child. The various organs are undergoing those structural changes which are to prepare them for service in after life; the brain reaching the first stage of development when an intellect is discernible; the nervous system sensitive to every touch and susceptible to every influence which is at variance with nature; the digestive organs being inured to more solid food; the teeth being developed by a process which does not seem to contemplate any interference; the crowns have been formed. As the roots are developed they are pushed forward; the gum tissue, yielding to the pressure, is absorbed and carried away to be distributed to other tissue—a process which requires an absolute harmony of the vital forces. As long as the absorption of the gum tissue is in proportion to the development of the root, an equilibrium is preserved, and no pathological symptoms are manifest. Under such harmony of forces the teeth would be erupted without attracting the attention of the most watchful mother. But let some interference with the vital phenomenon occur, some acute indigestion, or inflammatory action, the result of systemic derangement, and there will follow a general disturbance of the normal equilibrium. The lymphatic system will fail to remove the gum tissue in response to the demand from the growing fang within the bone. The result will be that the gum tissue will become an obstruction, a mechanical irritant, by holding in check the eruptive movement of the tooth, and whether or not this is the case, need not at all be indicated by swelling or soreness (though these are often concomitant symptoms), for if the gum tissue is susceptible to irritation from the impinging crown, how much more so would be the delicate bundle of nerves and vessels at the other end of the tooth where the root is being formed and which is subjective to exactly the same pressure from the resisting gum, as the gum will be from the developing root. It is then from the apical region that the greatest disturbance issues, and since all this pressure is brought directly upon the pulp of an infant's tooth, it can only be comparable to the severest pulpitis in the adult, and while in that case only one tooth is apt to be inflamed at one time, there may a half dozen or more restricted teeth in the case of the infant. I know of no better way to illustrate this than by holding a pin with the point resting directly upon the fingers of one hand while its head is pressed upon those of the other; the head of the pin will represent the crown of the tooth impinging upon the unyielding gum, while its point will indicate the reverse. Now where will the pain be felt? Of course, at the point of the pin; likewise, with the erupting tooth, the seat of pain is at the end of the root, and, as in adult teeth, is subject to all kinds of reflex action which in itself is sufficient to produce serious systemic derangement.

If the first treatment of odontalgia consists in removing whatever of irritants may be pressing upon the pulp, then the first treatment of the case under consideration would be to also remove the irritant by lancing the gum. It is a popular idea among mothers and, in a large measure, may be added physicians, that it is wrong to do this, in support of which no satisfactory reason or explanation has been given. When the exceeding simplicity of the operation and the incalculable benefits which may result are considered, it seems very hard to conceive why the helpless and speechless infant should be left for days in agony or, as many cases, carried to the grave without performing it.

This is a common ground whereon the dentist and a physician may very properly meet. From systemic lesions, dentition may be impaired, and conversely from impaired dentitions systemic lesions may result, going from one complication to another, which will demand the best skill of the healing art. The writer has had some experience in this class of practice and can cite many cases where lancing the gum was the only treatment indicated and where relief as promptly followed. The idea that citatrix forming (if the eruption of the tooth does not immediately follow) will render the gum more obstinate, has no foundation in fact, since cicatricial tissue less highly organized and consequently more easily absorbed than normal tissues.

One case worthy of mention is when, having been called to see a child which had been for days in its mother's lap with high fever, the gums were lanced over those teeth next in order of eruption, relief was immediate, and the child was at play on the floor five minutes later.

Another case was reported by a very worthy physician to the writer hereof· he had attended a child which did not improve under treatment, but instead grew worse until it had convulsions one after another for twenty-four hours, when he discovered redness and swelling of the gums, which were then lanced, with the happy effect of immediate relief, the child having no more convulsions and being rapidly restored to health.

The cases that could be cited showing the great necessity of relieving pressure by lancing are countless. When there are no systemic complications no further treatment will be required, and no amount of constitutional or general dosing will be a proper substitute for this simple operation.

The tooth-brush.—Have always in use four extra-hard tooth-brushes, to be used alternately, because the employment of one only means its rapid softening by becoming water soaked, defeating the object the brush is meant to accomplish.—*I. W. Wassal, Dental Review.*

A FEW WORDS ABOUT PACKING AMALGAM IN CAVITIES IN THE BUCCAL SURFACE.

By E. K. Wedelstaedt, St. Paul, Minn.

Let us take a practical case. Suppose we have a cavity in the buccal surface of a lower right second molar, which involves the gingival three-fifths of the crown. The rubber dam has been adjusted prior to the preparation. The cavity is ready for the filling material. For various reasons it is decided to use a quick-setting amalgam. Before mixing the alloy with mercury the amalgam pluggers should be taken from their place and fitted to the cavity. The largest plugger that will conveniently enter the cavity should be selected as the instrument with which to pack the amalgam. Now mix the alloy with mercury. Knead it thoroughly, and when it is in workable condition place the largest mass that can be advantageously handled into the cavity and compress it, using considerable force while so doing. This first mass of amalgam should, being compressed, fill the cavity about one-third. Add another large mass of amalgam and compress it. Continue adding amalgam and compressing it with about all the strength possible until the cavity is overfull. Should the cavity be about three millimeters gingivo-occlusally by five millimeters mesio-distally, take an amalgam plugger six millimeters in diameter and send the entire mass of amalgam home. Do not be afraid to use all the force you can exert. Then let the filling alone until it has fully hardened. Do not use a burnisher to "pat it down," for as the burnisher is drawn across the amalgam from distal to mesial the amalgam creeps from the distal cavity margin. If a burnisher must be used, burnish toward the distal margin, beginning on the amalgam some distance from that margin. Then place an instrument on that portion of the amalgam burnished to hold it in place while the burnisher is being used on other portions of the amalgam. It is better, however, not to use a burnisher. Not more than two or three minutes should elapse after the final condensation before the amalgam should be hard. (The majority of quick-setting amalgams, take too long a time to set. There should be an extra quick-setting amalgam, say an alloy that would set in three minutes after being amalgamated. A number of practitioners need such an amalgam.) As soon as the amalgam is hard it should be dressed and trimmed, using the Black trimmers and knives. Trim the amalgam from the center toward the margin. It is seldom or never necessary to trim from the margin toward the center. The more perfect the trimming at this time the less work remains to be done when the final polish is given the filling.

Now just one word regarding the finishing of fillings. It is just as essential that an amalgam filling should be trimmed and polished as it is that the cavity in the tooth should be filled. From the number of unfinished fillings I see, I cannot help saying that there are too many men who simply charge for making the filling. They seem to forget that more work and skill are required to properly finish a filling than are necessary in preparing the cavity and making the filling. Altogether too little attention is given this subject of finishing fillings.

I have spoken about compressing the amalgam, of instrumentation and have stated that the burnisher should not be used. In a short essay like this it is impossible to go into any great detail regarding these different things, so let me emphasize a few truths to which attention has been called in the past.

After an alloy has been mixed with mercury, been well kneaded and is ready for the cavity, the great majority of practitioners believe that how it is placed in that cavity makes little difference. This is a mistake and it is one that leads directly to failure, for compressing the amalgam and the use of instruments are both factors that must receive careful consideration, provided we desire to get the best results from the use of amalgam.

To prove the correctness of what has just been stated, I took a quantity of a well-known alloy and mixed it with mercury. After it was ready for use, I made a series of fillings. In making these fillings a number of different methods of compressing the amalgam were used and different methods of instrumentation tried. A careful record was kept of each of the series made, and a week later they were tested in the dynamometer. After testing these different fillings I tabulated the results and could scarcely believe what was before me, for some of the fillings crushed when 15 pounds were placed on them and others would not crush under 1,000 pounds of pressure. (All the fillings were the same size.) Now when it is taken into consideration that all these fillings were made from the same mass of amalgam we can begin to realize the effect compression and instrumentation have on the final results. The experiment I have just spoken of was not made once or twice, but I took this same alloy and used up the entire ounce in making a dozen or more experiments of the same nature. The only reward I obtained for all my labor was a verification of the first results obtained. I do not like to leave this subject, but enough has been said regarding it in other essays that I have written and it is not necessary for me to do otherwise than to ask that a careful study be made of what has been previously written regarding the use of amalgam.

I stated that it was better not to use a burnisher on amalgam fillings made in the buccal surface, for the reason that amalgam is so treacherous that where pressure is used with the burnisher it readily creeps from the margin. Where amalgam fillings are made in test tubes and examined microscopically before the amalgam has started to set, a black ditch can usually be detected at one or more places near the margin. While the test tube is still on the stage of the microscope, place a burnisher on the amalgam and note the results when you attempt to coax the amalgam toward that black ditch. If a little force is used you will observe that the amalgam on the opposite side of the tube springs away from the margin. Practically the only way to spread the amalgam so that the black ditch will be closed is by using the burnisher with the lightest force possible or by using two burnishers at the same time, one on each side of the filling. Where cavities are filled with amalgam, the amalgam, after being packed, should be let alone until fully set, for burnishing merely invites failure.

If amalgam must be used in a cavity, remember that the best results are obtained when attention is given to proper amalgamation, strongly compressing the amalgam, and to instrumentation. If there is an unwillingness on the part of the operator to follow certain well-known rules for using amalgam, some other filling material had better be placed in that cavity.—*Summary.*

ARRANGEMENT OF ARTIFICIAL TEETH.

In view of the many inartistic efforts at the arrangement of teeth which are brought to our notice, a few points on this important branch of dental art may not be out of place. A set of artificial teeth should not only feel comfortable in the mouth, and be of service in masticating the food, but should be so arranged as to hide their artificial nature, and this, above all other things, requires the close attention and artistic ability of the dentist. Unfortunately too many of our brethren dislike the work, and say they wish they were never called on to make a plate. If they really man what they say, they must either be poor workmen or take no interest in the work; in either instance, the patient must suffer. One great mistake is in trying to have a fixed rule for the arrangement of teeth. There are, comparatively speaking, no fixed rules in dentistry. Each case must stand or fall on its own merits, and each should be judged without any regard to any other.

The first point to which I shall call attention is the selection of teeth. We will speak first of what we have most commonly to deal with: upper sets with natural lower ones; the teeth should be the same color as the natural, of a size to form what we call a good articulation, the point of the upper cuspid fitting between the lower and first bicuspid; next, they should be the same shape and general appearance of those remaining. A little space judiciously given will generally tend to a more natural appearance, and in this way a good articulation may be obtained with teeth much smaller than would be required were they set close. The most space should generally be left between the centrals and laterals; the latter should be a trifle shorter than the former, and just a trifle out of line,—not enough to be called an irregularity. Unless the case demands it otherwise, the cuspids should be made prominent, particularly at the necks, thus hiding the bicuspids, which should scarcely show from the front. We see many sets where the rule has been reversed, and apparently an effort made to make the bicuspids more prominent than any of the others. These points must all be modified to suit each case. This can only be intelligently done by trying in the mouth on wax or other temporary plate; then little peculiarities may be studied and changes made to accommodate them. The bicuspids and molars must of necessity form a good occlusion with the opposing ones, but even here a little judicious grinding may make a great improvement. The teeth must, of course, be a proper length; the lip, when at rest, is usually a safe guide. If they are too short, the jaws close together too much, giving the appearance of nose and chin trying to meet; if too long, they are just as bad.

Another point which is often overlooked is giving the teeth the proper slope from the gum margin to the cutting edge. They are too often made nearly perpendicular, when the points will generally stand a slight outward slant. This must be governed by the shape of the mouth and position of the lower teeth. Avoid what is called the horseshoe arch, the widest point where the bicuspids come, and narrowest at the second molar. By reversing the order you can come much nearer the desired arrangement. It is sometimes necessary to place the six anterior nearly straight across to restore the contour of the lip, and this regardless of the shape of the ridge, which, though often a safe guide, is not infallible.

In arranging upper and lower sets more liberty may be taken in some directions and less in others; a little variation in shade is not so noticeable, but little, white teeth in the mouth of a large, swarthy person would not suggest a very close study of nature. More care is required in selecting the size. Not having any to go by, you must have each tooth occupy the place which you are led to believe the natural one did, spacing or lapping as the case may require. Not having any natural teeth to match gives you more liberty with the bicuspids and molars The former may be placed in so as not to show, the latter turned outward and upward. Sometimes the upper teeth must protrude to hold the upper lip in its normal position without forcing the lower to an abnormal one, while others will require being set nearly or quite "on end," for comparatively the same reason.

I have written this paper with a view to the exclusive use of plain teeth, as it is with them only the proper variations of arrangement can be obtained; and were a little more skill used in this respect, it would do more to overcome the prejudice in some minds against them. There are very few sets where the teeth are properly arranged, in which the artificial gum shows enough to be noticeable, and as this is the only advantage the gum teeth have, I think in view of the better occlusion and more perfect results obtainable by using the plain, it is our duty to throw our artistic skill into this branch, and thus overcome this foolish prejudice. I do not wish to be understood as making the fit and working qualities of a set of teeth subservient to the appearance, but I will say that many times were the patient perfectly pleased with the appearance first the fit would be a foregone conclusion.—*Headlight.*

FITTING COLLARS TO TEETH.

Take a single-rooted tooth to which a porcelain-faced crown is to be attached. We would, before attempting to trim the root, shorten it almost as much as necessary, and then with safe-sided files, sand-paper disks, corundum points and the various forms of scrapers, give the root the desired shape. With No. 34 soft iron wire, now take an accurate measure of the root. From this a band can be made, and if we remember the shape of the measure as it came from the tooth, it can be made to approximate the desired shape with slender pliers. This can now be forced on the stump and such portions as would go too far under the gum can be cut away, so that it extends under at every point alike; and if the root has been properly shaped, the extreme edge of the crown will fit the closest. The stump and band may now be ground down together, using a stone that will cut the proximal sides as well as through the center of the tooth. The reason for not shortening the stump to the necessary height at the start is that the difficulty of taking an accurate measure would be greatly increased.

The procedure in fitting the band for an all gold crown is necessarily much the same, though it is well to contour the band till there is sufficient knuckle to touch the adjoining teeth after the crown is finished, thereby preserving the interdental space.

One word more about the preparation for gold crowns of teeth which need little or no trimming, as they taper from gum to grinding surface. Something more than the thickness of the collar should be cut from the buccal surface of the tooth, and after the collar is properly fitted, small V-shaped pieces may be clipped from the end that is to be closed, and the edges of the gaps brought together so as to touch. These will easily solder up as the grinding surface is being attached. In this way glaring gold will be less conspicuous.

The method of taking a piece of gold and pinching it around a tooth, and depending on this for a fit, will reward us with a fit about one time in ten, or maybe not quite so often.

In casts of molar teeth, where there is enough recession to expose the depression between the roots, a groove may be cut from depression to grinding surface that will permit us to bend in the collar with pliers out of the mouth, and then put it in place. If the teeth are too sensitive for this, 24-karat gold may be used for the band, as this can the more easily be burnished into the depressions as the crown is being set.

Would that I could always make such accurate fits, like some whom I have heard discuss this subject, that a piece of silk would not catch upon the edge of the collar. Many bands go too far under the gum, and if we err either way it would be better for the tooth if the collar stopped just a little short than to go too far. The farther we get beneath the gum the harder it is, generally, to obtain good adaptation, and the more liable are we to have the band standing off at some point, thereby becoming a constant source of irritation, and, as a consequence, in a short time there is the swelling and tenderness characteristic of the pinched gum pedicle, and we being unable to relieve this permanently without removing the cause, our work is likely to prove anything but a joy.

Wherever collars or partial crowns are used for the support of bridge-work, the less of the tooth that is covered, to secure the necessary strength, the better it is for that tooth.

Too much cannot be said in condemnation of letting such collars extend beneath the gum like ordinary crowns, to become in a short time a source of irritation by pumping up and down on the teeth. For instance, a gap on the upper jaw, extending from the first molar to a sound cuspid. On the attachment to the molar all are agreed, but when it comes to the cuspid there is a diversity of opinion. A perfect-fitting collar, slightly broader on its lingual than its labial surface, extending just to the largest portion of the tooth, is indicated almost every time. These may be made by burnishing a piece of gold directly on the tooth which has been previously pinched around it by flat-nosed pliers, taking out small pieces where it is inclined to pucker. But what looks to be a better way is to make a perfect die of the tooth and around this shape the collar to fit.—*Headlight.*

THE BEST FILLING MATERIAL FOR THE TEMPORARY TEETH.

By John J. Bushe, D.D.S.

For the temporary teeth alone Dr. Bushe recommends copper amalgam, for the following reasons:

"It prevents recurrence or extension of decay, being antiseptic and non-shrinkable. It is so plastic that its manipulation is a delight. It is so slow setting that no haste need be made in the operation, although its easy working makes it possible to put in a filling more quickly than any other material. It may be placed in close proximity to the pulp, being non-irritating, and can be inserted without making pressure thereon. It is not affected by the presence of saliva, either in the cavity or on the unfinished filling, as are all the other plastics; no special pains to have perfect dryness are necessary. The filling is more easily and quickly finished than that made from any other substance."

To these well-founded statements Dr. Bushe adds that in ten years' experience he has never found any wasting of the amalgam in temporary teeth.—*International.*

SYPHILITIC LOCALOSIS ALVEOLARIS (PYORRHOEA ALVEOLARIS).

By E. Lennox Curtis, M.D.

Dr. Curtis believes that many, or it would seem, most, cases of pyorrhoea are due to a syphilitic taint. Where the white patches that one sees in the mucous membrane of the cheeks of some patients, which he well terms "egg-skin eschar," are present, he feels especially sure of his diagnosis. But to confirm it he has examinations made of the blood fresh from the patient. "The examination of more than one hundred cases revealed strong evidences of syphilis, and in every instance when the egg-skin eschar was present the blood showed unmistakable proofs of the taint; in fact, in every case where the blood showed this the egg-skin eschar was present." As proof of his theory Dr. Curtis cites the fact that such cases get well and remain so when placed on antisyphilitic treatment.—*Dental Cosmos* for February.

A TREATMENT OF PULPLESS TEETH.

By M. L. Quintin, of Brussels.

The writer reports seven thousand cases treated in the following manner, with but one failure:

Where there is no pericementitis he washes the canals with hydrogen peroxide, twelve volumes, dries and seals the apex with a paste made of iodoform and five per cent. formalin. Where there is pericementitis he washes with peroxide and leaves the tooth open, save for cotton loosely packed, for a day. At the next sitting, after washing again with peroxide, he pumps a drop of forty per cent. formalin into the canals, packs the canals with filaments of earth wet with five per cent. formalin, and leaves till another sitting, at which time he dries and fills with the iodoform and formalin paste.

It was in this class that he met with his one failure in seven thousand (quite a notable showing), in the case of a chlorotic young girl who demanded the immediate extraction of the offending tooth, which proved to have a sac twice the size of the crown of the tooth.

When there is pericementitis, and a fistulous opening exists, he washes, dries, and fills with paste at once, the fistula healing after three or four days. At this point he remarks that in the case of certain teeth, the incisors particularly, it is necessary to proceed with some caution when the fistula is of long standing. In such cases the apical foramen is liable to be larger than is common, and it is necessary to guard against the danger of pushing the paste through into direct contact, in any considerable quantity with the pericementum.

As the writer says in his paper, there is nothing especially new in this treatment, but the success of the method, one failure in seven thousand cases, is greater than most advocates of other systems of root-filling can claim.

Doubtless among the many antiseptic powders at our command a substitute could be found for the objectionable iodoform.—*L'Odontologie.*

BRIDGE RE-CEMENTED WITHOUT REMOVAL.

By Dr. E. S. Lawton, St. Paul, Minn.

A lady presented herself three months ago wearing a bridge, one end of which, consisting of a crown attached to the second right superior molar, had become loose through the gradual disintegration of the cement, while the remaining fastenings remained intact.

I at once decided to re-cement this crown if possible, without removing the bridge, and proceeded as follows: First, I drilled a hole through the cap of the crown to exactly fit the point of the syringe to be used, when I introduced a stream of warm water, which was continued until everything was washed out clean. I next injected hot air, until both tooth and crown were dry and warm, when the crown was pulled down from the tooth as far as it would come, and the cement forced in with a Siqueland cement syringe until it appeared at the gum margin, when the crown was immediately pressed into place and the operation completed.

I requested the lady to report to me at the end of three months that I might again examine the case after that lapse of time. She did so, and I found everything in perfect condition.

I do not claim any new method for this operation; in fact, I believe I have a dim recollection of seeing it described before, when an ordinary abscess syringe was used to introduce the cement, but I do wish to point out to some one who may not have thought of it before that, with proper instruments, an operation may be reasonably easy and certain in its results which, without such help, is, at best, difficult and unsatisfactory.

The hole in the crown was filled with gold, and was apparently as good as ever.

FACTS ON CARIES.

Dr. Harvey says:

First. That vegetarians, savages, primitive people, and lower animals have the most sound teeth.

Second. Dental caries is always present in chronic cases of indigestion.

Third. Only two persons out of fifty were found to have sound teeth; neither case was a dyspeptic.

Fourth. Highest degree of absence of dental decay was found to be where there was present a normal or excessive amount of free hydrochloric acid in the stomach fluid.

Fifth. The mouth is the culture medium of the body for the growth and development of bacteria.

Sixth. That in cases of vegetarians dental caries is almost totally absent.

Seventh. That the employment of soft food encourages deterioration of the teeth, developing disorders of indigestion.

Eighth. That wholesome, digestible food substances, free from bacteria, promote good digestion and preserve the natural teeth.

ANCHORING INLAYS.

Dr. S. G. Perry says in reference to the matter of anchoring inlays: If an impression is to be taken, the cavity must be so shaped that it will draw,—that is, made without undercuts. After the inlay is made and fitted accurately, if we will make a little groove on opposite sides of the cavity and then in the inlay make corresponding grooves that shall come opposite these, when it is cut it will be anchored with the cement in such a manner that it will be pretty sure to stay. Of course, with a very thin inlay, there is difficulty in making such a groove without cutting the edges of the inlay and disturbing it generally, and another objection has been, heretofore, that such stones or wheels as we have had are pretty sure to blacken the inlay. Therefore I had some very thin wheels made of the carborundum vulcanized with white rubber and you can see how thin the edges are. They are so sharp and thin on the edge that they will cut the necessary groove in almost any inlay without disturbing the fine edges, and what is more important is that being vulcanized with white rubber they leave no stain. The inlay goes in without any sign of being disturbed. After using these wheels some time, they get a little dull, but if one will have a diamond, such as Dr. Delos Palmer uses for sharpening wheels and disks, they can be sharpened as one would sharpen a knife.

Dr. W. D. Tracy: For those who are not fortunate enough to possess a diamond, I would say, if they will revolve the edge of the disk in a little dish of chloroform, the chloroform will sharpen it.—*Cosmos.*

A BANDED LOGAN CROWN.

In this method of banding the Logan crown, the root is prepared as for a Richmond crown. The root-canal is enlarged and shaped to receive the pin of a Logan crown properly, using such a pin to determine the shape and fit. Make the band and cap and solder together as usual. Punch an oblong hole in the cap so as to receive the pin of the Logan crown. Place the cap and band in position on the root and insert an orange-wood peg in the canal similar in size and shape to the Logan crown pin, but fitting loosely so as to come away with the impression. Take an impression and bite all in one in plaster of Paris. Run the models and articulate in plaster. Withdraw the wooden peg. Select a Logan crown to suit the case, and with a carborundum or gem stone grind dry to articulate and also to form a close joint with the cap. Carbon paper can be used to determine high places in grinding. Then take a piece of thin platinum foil, and make cuts in it the shape of the capital letter I to receive the pin of the crown. Pass this over the pin and burnish down over the cervical end of the crown. This should lap over on the sides of the crown about one-sixteenth of an inch. Fasten the crown on the cap with hard wax or Parr's fluxed wax. Cut away the plaster and remove from the model. Invest crown downward and place a few pieces of solder around the pin and solder. This makes a crown with perfectly closed joints, and for naturalness, strength and appearance is superior to a Richmond.

The crown may be cemented to the cap and then removed from the model, finished, and set without soldering.—*McClain.*

PRACTICAL POINTS FOR BUSY DENTISTS.

Crowning molars which are decayed below the gum margin.—Place pins in the roots; press wax down to the bottom of the cavity, shaping it around the pins, filling up the cavity and restoring the contour. Remove pins and wax, invest in plaster, dry out, remove the plaster, and replace by fusible metal. Try in, trim, cement into roots, and it is ready for a collar.—*British Dental Journal.*

Beware of Procrastination.—Last week a delinquent subscriber said he would pay up if he lived. He died. Another said: "I will see you tomorrow." He's blind. Still another said: "I'll pay you this week or go to the devil." He's gone. There are hundreds who ought to take warning of these procrastinators and pay up now.

Drill burs.—The inverted cone burs, when dulled, can be brought to renewed usefulness by grinding the end until the dulled corner is ground away and a new, sharp corner is made.—*Western Dental Journal.*

Kowasko's paste.—Acetone, gr. 500; celluloid, gr. 155. Makes a stiff pasteuseful to hold loose teeth together; hardens sufficiently in an hour and a half. Valuable as an application to sensitive necks of teeth. Dry the tooth with alcohol and smear with the paste; dries in fifteen minutes and sticks to the tooth very firmly.—*Dental Review.*

Cleansing the teeth.—When a person is in health, and the mouth in a normal condition, a soft brush with plenty of water is all that is needed for cleansing the teeth. But when the patient is sick, the condition of the mouth is abnormal, and treatment to suit the individual case should be carried out under the eye of a competent dentist or physician.—*Dental Cosmos.*

DIAGNOSIS IN DENTAL PRACTICE.

Dr. W. H. Whitslar: With the advance which has been made in dentistry, diagnosis has become much easier, but this should not cause us to underestimate the importance of it, as the power of diagnosis comes only by hard work and study. The treatment of any disease depends always upon the character of the case, and one's knowledge of the organ or tissue affected may be little or great, which will of course influence the diagnosis. To make a correct diagnosis, one should have a thorough knowledge of all the tissues, organs and functions of the human body; and when a careful diagnosis is made, an adequate fee should be asked for services rendered. In few cases will the fee received come near compensating the cost of procuring the knowledge necessary to render a correct diagnosis. By adequate knowledge is meant more than mere learning; it requires the ability to apply knowledge. Dentistry is the science of the treatment of a portion of the human body, but in this treatment a knowledge of physiology, pathology, bacteriology, and histology is required, and it is the study of such subjects which has made the practice of dentistry a science.

The lack of knowledge in reference to health and disease gives rise to many uncertainties in treatments. Many cases would heal spontaneously as it were, provided they had been allowed to do so. Insight as to nature's methods or conditions of tissues is very necessary.

Nearly all the dental diseases are easy to diagnose because of their expressiveness. If the case is obscure, analysis of the saliva and blood tests may be utilized. Odontalgia is probably the most common disease which the dentist has for treatment. We are often asked what is good for the toothache? One readily recognizes that there are many different causes of toothache. Odontagia is relieved by quinine sometimes, but this would more frequently increase the pain, which emphasizes the fact that a little knowledge is bad, we must know all about the case. One should begin to study the patient the moment he comes into the office, observe external appearance, lips, contour of jaw, and also the face. Examine also every organ and tissue in the mouth; the tongue, its movements and coatings of same for internal disturbances; also the mucous membrane for inflammatory disturbances; the gingiva for all peridental affections; lastly, the teeth, note if any are to be supplied and how those that are in the mouth are used. All these things should be considered together in order to make a proper diagnosis of any condition of the mouth.

Dr. H. A. Smith: A little while ago the editor of one of the leading dental journals discussed the subject, "The Importance of Diagnosis." He thought the young college student did not give enough attention to it. He said, "Whenever a young physician was called to his first few cases he gave more attention to the remedies than to the diagnosis, and that this probably grew out of his failure to study the science of diagnosis; in other words, he gave more attention to what the professor gave as prescriptions and did not take down the discussions on the manner of diagnosis."

The ability or power to diagnose is not inherent, but it comes only after hard work, and one must always be able to distinguish between the normal and perverted physiology of the human body. The late Dr. Mussey had a most wonderful power of diagnosis; it was often stated that he was endowed, but it was finally ascertained that his great power came only through a thorough system and constant study.

Reference was made to the sense of smell. I think we neglect that very important sense, and the time is coming when disease will be very largely distinguished by smell. It is well known that this sense often tells the quality of the saliva. This important fact is many times overlooked by the student, and is only recalled by suggestion when he meets cases in practice.

Pyorrea alveolaris may be easily distinguished by its odor. I think it smells a good deal like a mouse nest. The sense of smell is many times overlooked because of the use of the sight. I think it is very important, and if I were a young practitioner I would smell every patient.

The sense of taste is also very important. Dr. Atkinson once said that benign pus was good to eat, this surely means something.

The sense of sound is also much neglected by us. Dr. Bodecker in his book on pathology distinguished the degree of inflammation in the tooth also in the periosteum and abscesses, by the sounds emitted, this requires a high degree of cultivation, which we don't all possess. All of our senses should be utilized in a systematic examination of cases, and treatment should be secondary to that and based on the results of the diagnosis.

Dr. C. R. Butler: One might infer from the manner in which the discussion was opened, that in order to be an expert diagnostician one must be a very learned man, and if he renders services they were worthy of good fees. Considering then the large number of schools which to-day include the study of considerable medicine in their curricula, the students whom they graduate ought to be very expert diagnosticians, but I think it is well known that this is not the fact. To think also that this power comes by magic or any peculiar endowments is superstitious and quackery. Acuteness in diagnosis comes largely by experience and the man himself. It behooves us to be very observing, to use all the faculties we have first. Find out the cause of the trouble first and then look for remedies.

In reference to sound, it is a very important thing, if you practice it a little while you will soon ascertain that there is quite a difference between the sound emitted by striking a live tooth and that by striking a pulpless tooth.

In inflammation of the peridental membrane all physiological conditions must first be well understood before you can diagnose the pathological. When I hear a young man say, "What's the use in studying physiology and pathology to be a dentist?" I know immediately if he starts out so, he will never be a successful dentist.

Dr. S. D. Ruggles: Diagnosis as practiced by the dentist is really a matter of differentiation. We all know the difference between a live and a pulpless tooth; difference in color, difference in sensations of heat, cold, etc. There are certain characteristics of the gums and teeth which immediately causes us to look for pyorrea. There is nothing a dentist should cultivate more than careful observation, and this must be cultivated, as it is not inborn in all of us.

Last Sunday I received a telephone message to call at a certain place to see a man who was suffering with an abscess on the upper left side of the mouth; the tooth had been crowned and there had been a large fistula for a long time but it had now closed up and the tooth was slightly elongated. I came to the conclusion there was pus to be liberated. I took him to the office, cut into the abscess when I succeeded in getting pus. I told him the swelling would go down but that he might have recurrence. The next morning I was telephoned by a physician to come to the patient's house prepared to relieve pain and release pus. I did so, and much to my surprise found the opening free and no pus present. His face was very much enlarged, and there seemed to be considerable infiltration and color of a light reddish pink with well defined fin-shaped margin; the cellular tissues under eyes were much distended and crept across the bridge of the nose. I knew there was something else than abscess there. I suspected erysipelas, I remembered that in erysipelas these fin-shaped projections crept across the bridge of the nose, etc. Proceeding on this suggestion I commenced a series of questions. I found that the fistula had been present for several years but had caused little or no trouble. I came to the conclusion that it was chronic and that no infection got in through it. After quite a few questions and answers he finally said that the week before he had been to see his father-in-law who had the erysipelas, and I came to the conclusion that his infection came through that source. I told him, therefore, that no pus was there and put in a dressing to take away bad taste, and left him. Just before I left home the doctor diagnosed the case as erysipelas.

Dr. J. Taft: Observation is employed through the five senses, and we often take it for granted that these are in just as good condition as when we received them from our parents. Too much cannot be said upon the cultivation of the senses. Suppose the eye had not been trained in order to make a thorough and well-equipped microscopist? Where would microscopy be today? This is illustrated in all microscopic work. How much better one who is so trained than one who is not, the latter being unable many times to locate objects under the microscope which would be comparatively easy for the former. This simply emphasizes the importance of the proper cultivation and use of the senses, being careful always to keep them in the best possible condition. How often do we see the dentist going to the operating chair after being in the laboratory, even without cleaning his hands, and if the hands are clean they are very rough. One can not successfully practice both the prosthetic and operative branches of dentistry. We do not realize the value of well-kept hands in operative work. This is manifested by the great lack of care shown by dentists. The sense of smell is also quite important. I remember an old physician who had never used a stethoscope, hearing of it, he finally purchased one. Not understanding its use he began a series of experiments. He was finally called to visit a patient upon whom he thought he could use the stethoscope, and after several trials he placed the large end of it upon the patient's mouth and his nose at the other end. Of course, this was an unreasonable thing to do, but at least showed a desire on the part of the physician to do something for the patient. If we are all as persevering as this old doctor, in our work, we will learn something we did not know before. The ear should also be cultivated to detect the various sounds. There is a great diversity in the acuteness of physicians to the various sounds of the body; different physicians hearing differently in the same diseases. Some physicians can not tell one tone from another.

BOOK REVIEWS.

SUCCESS IN DENTAL PRACTICE. A Few Suggestions Relative to the Most Approved Method of Conducting a Practice. By C. N. JOHNSON, M.A., L.D.S., D.D.S., Professor of Operative Dentistry in the Chicago College of Dental Surgery. Publishers, The J. B. Lippincott Co. 1903.

This is a little work of great value to the average dentist. It is written by a successful dentist, and hence one capable of making suggestions. To the young dentist just stepping into practice, the book is invaluable. It maps out a course for him in every detail of his business and ethical duties that could hardly be improved upon, and if he is reasonably proficient as a dentist it is a veritable guide book to success. At the same time, many a man with years of practice behind him may get valuable suggestions from its perusal. Buy a copy and read it carefully.

Pulp-Capping.—Place a little iodoform and glycerin over a tender pulp, and a little asbestos paper over that; then place in oxyphosphate and let it set. Over that you can put in any filling you choose, and it will not irritate the pulp.—*International Dental Journal.*

Send Postal and get Sample Package by Return Mail.

PEERLESS

IMPROVED LINEN FINISHING STRIPS & DISCS MANUFACTURED BY EUGENE SCHENKENBERG, RACINE, WIS.

TRADE MARK

EUGENE SCHENKENBERG

MANUFACTURER OF

Linen Finishing
Strips and Disks,

1315 DOUGLAS AVE., RACINE, WIS.

OUR STRIPS ARE MANUFACTURED FROM TEN YEARS' EXPERIENCE.

The Irish Linen used in our Strips is imported for our use, and is especially adapted, being very thin, tough and strong.

Particular attention is called to our rouge strips, which are used only for final finishing.

Carborundum, Garnet, Rouge, Flint, Emery, Cuttle, Etc.

The cutting quality of our Strips is a feature, because the grits are scientifically applied, and do not allow the filling to become too hot.

If you cannot obtain our Strips from your salesman I will mail you three packages prepaid upon receipt of one dollar, and Disks at 10c per box, or three for 25c.

THE

OLIVER

The Standard Visible Writer.

If the VISIBLE writing typewriter had been FIRST in the field there would be no sponsor for the blind kind.

The OLIVER does any kind of work for any kind of business and does it perfectly and IN SIGHT.

Art Catalog and Reasons are Free.

THE OLIVER TYPEWRITER CO.,
107-109 Lake St., - - Chicago, Ill.

Other Dentists are familiar with the virtues of

Liquid Powder

SOZODONT

Alkaline Antiseptic Astringent

from critical tests. Why not get into line and give these preparations a thorough trial not only as detergents, but as remedial agents as well. May we not send you samples, analyses and our pamphlet entitled "Sozodont in the Dental Office"? Correspondence invited.

Established 1848

Hall & Ruckel

New York City

Something New in Dental Journalism

The American Dental Journal

beginning with the March number will inaugurate a Progressive Course of Practical Instruction ❦ ❦

We congratulate our readers on their good fortune in having for their writers in this department such men as Drs. Hart J. Goslee, Geo. W. Cook, B. J. Cigrand and R. B. Tuller. An introduction would be superfluous. They are well known. They are all instructors in university schools and will give you of their very best. The key-note of this course will be the word Practical. This course of instruction is designed for the "everyday dentist" in his "everyday practice."

At a meeting of our instructors held January 21st, it was decided to change the name as above and the date to March. The latter was made necessary by the near approach of the Odontographic meeting and the work being done in committees by our writers. All communications to this department should be sent to Dr. G. W. Cook, 47th and Kenwood Ave., Chicago, who will conduct this branch of the American Dental Journal.

Subscription

$1.00 per Year

Send Subscriptions to

FRINK & YOUNG, Publishers,

607-8-9 Masonic Temple,

CHICAGO, - - - U. S. A.

Good Stationery

MEANS SUCCESS

We print entirely from Steel Dies, Copper and Steel Plates and would be pleased to submit Samples and Quotations.

ENGRAVED CARDS AND INVITATIONS

100 Script Engraved Cards, one line, including plate, postpaid,	$1.25
100 Script Engraved Invitations, 8 or 9 lines, including plate, with outside and inside Envelopes,	7.25

Engraving and stock best on market.

Largest House in the World in this line.

The American Embossing Co.,
BUFFALO, NEW YORK

Carborundum Diamond

After you have tried all other finishing strips and disks, send postal card for samples

SUPERIŌR DENTAL FINISHING STRIPS

Registered August 12, 1902. No. 9364.

They are made by a dentist for the dentist. 35c. per box containing one gross, or three boxes $1.00, and if not just what you want, return them, your money back by return mail.

Made in all grits, widths and the right length, assorted or all of one kind in one box.

This strip is our best product. Honestly made and an honest price.

Our extra coarse strip is a hustler.

SUPERIŌR DISKS Kinds: Cuttle-fish, Carborundum, Emery, Garnet, Sand-paper
All Sizes. 10 cents per box, 12 boxes $1.00

Order from your dental dealer or direct from us.

Remit by money order, cash or stamps.

SUPERIOR DENTAL STRIP CO.,

F. MESSERSCHMITT, D. D. S. 138 MAIN ST., E., ROCHESTER, N. Y.

Samples Free for a Postal Card.

DENTAL RUBBERS

NAMED SUPERIOR — CLAIMED SUPERIOR

Our line of vulcanite, rubber dam, bellows, discs, plaster bowls, tooth polishing cups, discs and points, separating strips, gutta percha stopping, tubing, bulbs, mats, etc.,

CANNOT BE SURPASSED

Eighteen years' standing with the profession. If your depot cannot supply you, write for samples and prices direct to

MORGAN & WRIGHT,
331-339 West Lake Street, Chicago, Ill.
New York Branch: 214-216 West 47th Street.

ADRIAN SPEAR RUTHERFORD

"Low Heat" Modelling Composition, (White or Pink,)

38c per 1-2 pound box.

Base Plate Wax, Sticky Wax and Temporary Stopping.

289 Pleasant Ave., - - New York City, N. Y.

Barker's Porous Polishers for the Lathe and Engine

Best yet produced for any kind of material and all styles of work.

EFFECTIVE. ***DURABLE.*** ***ECONOMICAL.***

A TRIAL WILL CONVINCE YOU.

PRICES: Lathe Wheels and Cones, single, 15c. Sets of five, 50c.
Engine Points, 1 dozen package, 50c.

TRADE SUPPLIED. ASK YOUR DEALER TO SUPPLY YOU.

W. H. H. BARKER, M. D., D. D. S., Inventor and Sole Manufacturer,
CHICAGO, ILL., U. S. A.

The Sims Hydraulic Engine

has been on the market for several years, and by virtue of certain merits it can now be found in all the civilized countries of the World.

We can only tell you a very little about it here, but some of its principal features are as follows:

The foot switch placed at the back of the chair working in conjunction with the controller of the motor gives the most sensitive and perfect control of the dental engine.

All our motors have hardened steel Ball Bearings and as all the wear is in the end of the motor shaft we do not see how these bearings can ever wear out.

If you purchase our motor you will never have to send back for new boxings and shaft. Nothing could run nicer than the impulse wheels of our motors spinning on a hardened steel ball. This and the perfectly balanced cast brass wheel is the secret of our noiseless running motors.

Our wall bracket and engine head, while very simple, contain all the parts that are necessary. Our engine head will take the S. S. White cable and sheath, or the bracket will take the S. S. White engine head, or any other having a 5—16 in. shank.

OUR LATHE MOTOR

was built for business and it is the one to do the work, and the cut also shows the proper method of connecting up to the lathe.

We assert that the cheapest and best power equipment for the dental office is one reversible motor connected up at the chair for the engine, and a lathe motor connected up at the lathe for the lathe.

We have just completed a new catalogue and would be pleased to send you a copy. It will tell you all about it.

Sims Hydraulic Engine Co., Lincoln, Nebraska.

Stypticin In Stubborn Local Bleeding

Stypticin is a convenient, effective and prompt hemostatic. Reports from many dentists show that it is not caustic like carbolic or chromic acid; it does not produce foaming as hydrogen peroxide does; nor does Stypticin form blood-clots like the iron preparations and other styptics. It is a vaso-constrictor pure and simple.

> Henry H. Phillips, D. D. S., Cincinnati, Ohio, writes of his experience with Stypticin as follows:—"I must say it acted exactly as others have stated—like magic. I had a patient who had numerous hemorrhages, some of them very severe. The patient's gums were always in a hemorrhagic condition. She often complained of bleeding during the night. I tried numerous styptics, but each in its turn failed. It seemed they would cure for awhile; that is for a day or two. Since I used Stypticin the gums are in a healthy condition. That which I have looked for has been found. The dread of extracting for some people has vanished."

Stypticin is marketed as Powder and in Merck's 3/4 grain Dental Tablets, and is sold by all druggists.

A compilation of interesting reports on Stypticin will be mailed to any dentist on request.

MERCK & CO.,

University Place, = = NEW YORK.

BREWSTER'S

HIGH-FUSING PORCELAIN

THE PORCELAIN USED BY THE LEADING PORCELAIN WORKERS IN THE U. S. AND CANADA

BREWSTER'S Porcelain has been in daily use since 1897, when its Formula was adopted by the leading Porcelain men of the Country.

Whatever Society Clinic you attend you will find Brewster's Porcelain being used: ***Why?*** because the same natural looking results cannot be obtained with any other Porcelain. There is a Translucency and life-like look, peculiar to this material, which the finest operators appreciate.

Men who are not satisfied to benefit by the experience of experts, but prefer to ***buy*** their experience, will probably purchase any outfit that may be recommended to them by an interested dealer; ***and afterwards buy Brewster's.***

Their experience with the first outfit is of little or no benefit to them or their fellow-practitioners, except in so far as it enables them to better appreciate the unique qualities of Brewster's, and add still another to its long list of enthusiastic advocates.

Mr. Brewster will gladly send information upon Porcelain, and the method of using "Colors in Oil" to any one interested whether ordered direct, or through a Dental House.

**For Sale by Dental Houses and by
the Manufacturers**

The Brewster Dental Company

2544 Princeton Ave., CHICAGO

The Brewster Porcelain.

Our Porcelain is so widely used and is supplied through so many channels that we can-
ot possibly know the names of a tithe of those using it. If your name is not in the following
st of users, please send it to us at once, as Mr. Brewster has a sample of something new to
nd you.

The Brewster Dental Company,

H. M. BREWSTER, Secretary.

recht, T. J., Mayville, Wis.
rine, R. C., Rushville, Ill.
el, B. C., Rushville, Ill.
drews, G. F., St. Paul, Minn.
endorph, E. W., Kansas City, Mo.
nold, L. H., Chicago, Ill.
en, A. B., Chicago, Ill.
derson, C. L., Washington, D. C.
ams, W. R. Decatur, Ill.
ell, A. B., Philadelphia, Pa.
helpohl, F. H., St. Louis, Mo.
bler, H. L., Cincinnati, Ohio.
nley, K. P., Kansas City, Mo.
hur, H. W., Pittsburg, Pa.
gle, H. W., St. Louis, Mo.
bott, C. E., Franklin, Mass.
air, R., Atlanta, Ga.
oth, L. W., Milwaukee, Wis.
von, W. J. O., Lawrence, Kans.
ntley, C. E., Chicago, Ill.
dges, Josiah S., Chicago, Ill.
rry, W. M., Chicago, Ill.
yant, C. F., Chicago, Ill.
yant, Lester, Chicago, Ill.
rber, L. L., Toledo, Ohio.
nt, E., Braintree, Mass.
wman, C. H., San Francisco, Cal.
nzhaf, H. L., Milwaukee, Wis.
bcock, C. E., Milwaukee, Wis.
esley, J. H., Bloomington, Ill.
eene, F. T., Iowa City, Ia.
rkhardt, F. H., Chicago, Ill.
xter, A. H., Philadelphia, Pa.
nsall, C. F., Philadelphia, Pa.
unet, F. R., Philadelphia, Pa.
rtlett, W. M., St. Louis, Mo.
xton, C., San Francisco, Cal.
ake, A. E., San Francisco, Cal.
ale, R. G., Philadelphia, Pa.
yant, C. C., Philadelphia, Pa.
oomell, I. N., Philadelphia, Pa.
thel, L. P., Columbus, Ohio.
rrett, W. C., Buffalo, N. Y.
chanan, J. H., New York, N. Y.
nson, J. H. B., Washington, D. C.
rtell, J. E., Milwaukee, Wis.
ram, J. Q., Indianapolis, Ind.
rne, A. Sidney, New So. Wales.
rnes, V. E., Cleveland, Ohio.
rry, W. H., Milwaukee, Wis.

Crandell, W. E., Spencer, Iowa.
Curry, J. A., Streator, Ill.
Cashman, A. V., Racine, Wis
Chaney, Henry M., London, Ohio.
Cutter, H. E., Cambridge, Mass.
Custer, L. E., Dayton, Ohio.
Capon, W. A., Philadelphia, Pa.
Capon, T. J., Toronto, Can.
Callahan, I. R., Cincinnati, Ohio.
Clark, A. B., Honolulu, Hawaii Is.
Clancey, D. W., Cincinnati, Ohio.
Catheral, 8. 6., Duluth, Minn.
Cogan, W. N., Washington, D. C.
Coriell, L. D., Baltimore, Md.
Conkrite, F. P., St. Joseph, Mo.
Casaday, C. B., San Francisco, Cal.
Carlton, H. P., San Francisco, Cal.
Cudworth, W. H., Milwaukee, Wis.
Coons, N. D., Aberdeen, Wash.
Chambers, W. T., Denver, Colo.
Cowardin, L. M., Richmond, Va.
Cheaney, C. Price, Dallas, Tex.
Cunningham, Kansas City, Mo.
Cox, W. G., St. Louis, Mo.
Carmichael, J. P., Milwaukee, Wis.
Cheeseman, F. E., Chicago, Ill.
Cross, M. F., O'Shana, Ont.
Cutting, A. J., Southington, Conn.
Crutcher, T. M., Louisville, Ky.
Crenshaw, Wm., Atlanta, Ga.
Dubeau, Eudore, Montreal, Quebec.
Dellinger, C. E., Baltimore, Md.
Dunbar, L. L., San Francisco, Cal.
Doddard, C. L., San Francisco, Cal.
Dickinson, W. P., Minneapolis, Minn.
Davis, Clyde, Lincoln, Neb.
Davis, L. F., Washington, D. C.
Dolmar, W. H., Philadelphia, Pa.
Dadum, W. E., St. Paul, Minn.
Delbridge, W. H., Greeley, Colo.
Duncan, C. H., Hearne, Tex.
Dale, J. A., Nashville, Tenn.
Darby, E. T., Philadelphia, Pa.
Ely, J. O., Chicago, Ill.
Elliott, G. B., Elgin, Ill.
Eisenstaedt, Chicago, Ill.
Evans, Wm., Chicago, Ill.
Fell, B. M., Doyleston, Pa.
Fisk, F. R., Spokane, Wash.
Foster, W. G., Baltimore, Md.

Foster, M. W., Baltimore, Md.
Fuller, A. H., St. Louis, Mo.
Foster, S. W., Atlanta, Ga.
Flagg, E. M., Philadelphia, Pa.
Fundenberg, W. H., Pittsburg, Pa.
Fletcher, F., San Francisco, Cal.
Ford, C. M., New York, N. Y.
Foster, M. F., Atlanta, Ga.
Frumveller, Edw., Detroit, Mich.
Fowler, C. S., Watertown, N. Y.
Fruth, O. J., St. Louis, Mo.
Foster, W. G., Baltimore, Md.
Freeman, R. R., Nashville, Tenn.
Finney, W. B., Baltimore, Md.
Fletcher, F. F., St. Louis, Mo.
Gareschi, A. J., Victoria, B. C.
Goslee, H. J., Chicago, Ill.
Gebhardt, R. C., Black River Falls Wis.
Gorgas, F. J. S., Baltimore, Md.
Gorman, B. J., Baltimore, Md.
Grant, Indianapolis, Ind.
Grant, W. E., Louisville, Ky.
Gray, J. P., Nashville, Tenn.
Giles, W. J., Montreal, Can.
Gallagher, J. A., New York, N. Y.
Gritman, A. Dewitt, Philadelphia. Pa.
Guilford, S. H., Philadelphia, Pa.
Hooper, A. O., San Jose, Cal.
Hunt, F. M., Des Moines, Ia.
Hazell, E. F., Springfield, Ill.
Huntley, R. L. G., Mason City, Ia.
Haskell, L. P., Chicago, Ill.
Hunt, A. O., Omaha, Neb.
Hare, D. A., Chicago. Ill.
Hiatt, N. W., Marion, Wis.
Harned, M. R., Rockford, Ill.
Hancock, J. E., Chicago, Ill.
Harlan, Houston, Phoenixville, Pa.
Hardy, G. E., Baltimore, Md.
Hoffmeister, Edw., Baltimore, Md.
Hollingsworth, J. G., Baltimore, Md.
Hauselt, C. P., San Francisco, Cal.
Hopkins, R. L., Sterling, Ill.
Hoffmann, C. H., Des Moines, Ia.
Hunt, G. E., Indianapolis, Ind.
Hinckley, B. C., Keokuk, Ia.
Hosford, Wm. S., Iowa City, Ia.
Huber, E. E., Philadelphia, Pa.
Harlan, J. E., Manistee, Mich.

Hicks, H. S., Indianapolis, Ind.
Hacker, T. S., Indianapolis, Ind.
Holmes, M. J., Brookland, D. C.
Howell, S. B., Philadelphia, Pa.
Hodge, L. D., Arkansas City, Kan.
Hermann, A. W., Philadelphia, Pa.
Hofdeinz, R. H., Rochester, N. Y.
Heckard, W. A., Indianapolis, Ind.
Hall, F., Cambridge, Mass.
Hert, B. S., Rochester, N. Y.
Hofard, H. D., Pittsburg, Pa.
Hertz, E. F., Minneapolis, Minn.
Hoff, N. S., Ann Arbor, Mich.
Hunt, G. E., Indianapolis, Ind.
Hillyer, Ellison, New York, N. Y.
Holland, Frank, Atlanta, Ga.
Johnson, A. H., Rochester, N. Y.
Johnson, C. N., Chicago, Ill.
Johnson, A. G., Chicago, Ill.
Jones, E. X., Chicago, Ill.
Jenkins, J. H., Liberty, Mo.
Jeffry, J. A., San Francisco, Cal.
Jackson, H. N., Milwaukee, Wis.
Jones, H. C., Richmond, Va.
Jack, Louis, Philadelphia, Pa.
Knowles, I., Chicago, Ill.
Kelsie, H. E., Baltimore, Md.
Ketcham, D. H., Denver, Colo.
Kennerly, J. H., St. Louis, Mo.
Kirk, E. C., Philadelphia, Pa.
Kretschaan, E. A., Philadelphia, Pa.
Kellogg, A. E., Cresco, Ia.
Keefer, J. B., Portland, Ore.
Kettig, E. M., Louisville, Ky.
Lord, Chas., Colon, Mich.
Le Cron, D. O. M., St. Louis, Mo.
Lodge, E. B., Cleveland, Ohio.
Lancaster, H. N., Chicago, Ill.
Lewis, E. H., Washington, D. C.
Lauderdale, C. F., Milwaukee, Wis.
Letord, J. S., Kansas City, Mo.
Lindsley, C., St. Louis, Mo.
Litch, W. F., Philadelphia, Pa.
Latham, H. E., Philadelphia, Pa.
Lush, F. A., Cincinnati, O.
Morgan, J. B., Davenport, Ia.
Murray, Robert, Buffalo, N. Y.
Major, S. M., Kansas City, Mo.
Metzer, O. J., New York, N. Y.
Montgomery, W. S., Lexington, Ky.
Mallory, F. R., Toronto, Ont.
Millard, W. R., Philadelphia, Pa.
Marshall, M. C., St. Louis, Mo.
Miller, H. C., Portland, Ore.
Morgan, H. W., Nashville, Tenn.
Morgan, D. H., Muskegon, Mich.
Moore, T. E., Columbia, S. C.
Mitchell, G. B., Rochester, N. Y.
Mummery, N. J., Milford, Mich.
Milner, M. B., Baltimore, Md.
Molyneaux, G., Cincinnati, O.
Merrill, C. A., Birmingham, Ala.
Moore, E. C., Detroit, Mich.
McCurdy, J. S., Ft. Wayne, Ind.
McCaudless, A. W., Chicago, Ill.
McElroy, W. Z., Atlanta, Ga.
McMillen, D. J., Kansas City, Mo.
McGehee, W. H. O., Richmond, Va.
McDonagh, A. J., Toronto, Ont.
McLean, W. T., Cincinnati, O.
Neubauer, Frank, San Francisco, Cal.
Nyman, J. E., Chicago, Ill.
Northrup, A. L., New York, N. Y.
Noble, H. D., San Francisco, Cal.
Noel, L. G., Nashville, Tenn.
Nones, R. H., Philadelphia, Pa.
Pfaff, G. J., St. Louis, Mo.
Piper, A. O., Macomb, Ill.
Patterson, T. G., Geneva, Switzerland.
Perry, C. J., Chicago, Ill.
Perry, G. B., Chicago, Ill.
Parr, H. A., New York, N. Y.
Partmentier, H. A., New York, N. Y.
Patterson, J. D., Kansas City, Mo.
Purtell, J. E., Milwaukee, Wis.
Prinz, H. H., St. Louis, Mo.
Pearson, M. W., St. Louis, Mo.
Parker, F. M., Los Angeles, Cal.
Pond, V. S., Boston, Mass.
Piper, J. R., Boston, Mass.
Protdero, Chicago, Ill.
Pearsall, Dublin, Ireland.
Robinson, C. H., Wabasha, Minn.
Rowland, W. T., Bentonville, Ark.
Raiche, F. C., Oshkosh, Wis.
Robinson, E. G., Norwood, Minn.
Rohland, C. B., Alton, Ill.
Roach, F. E., Chicago, Ill.
Register, H. C., Philadelphia, Pa.
Roo, W. R., Philadelphia, Pa.
Reid, H. M., Minneapolis, Minn.
Ross, J. F., Toronto, Ont.
Stith, W. M., Petersburg, Va.
Smith, T. V., Philadelphia, Pa.
Stewart, L. K., Chicago, Ill.
Skinner, F. H., Chicago, Ill.
Small, B. A., Iowa City, Ia.
Sarrazin, J. J., New Orleans, La.
Salter, C. B., Chicago, Ill.
Shultz, E. H., Washington, D. C.
Smith, E. H., Boston, Mass.
Smith, G. J., Baltimore, Md.
Sutherland, J. C., Baltimore, Md.
Skeen, P. A., Texarkana, Tex.
Shidle, G. R., Pittsburg, Pa.
Stilwell, M. H., Philadelphia, Pa.
Salvas, J. C., Philadelphia, Pa.
Smith, H. A., Cincinnati, Ohio.
Smith, H. T., Cincinnati, Ohio.
Steel, C. L., Richmond, Va.
Simpson, G. L., Pittsburg, Pa.
Stubblefield, D. R., Nashville, Ter
Smith, E. S., Washington, D. C.
Stern, H. S., San Francisco, Cal.
Spencer, W. R., Vancouver, B. C.
Stephan, L. J., Milwaukee, Wis.
Stoddard, G. E., So. Berwick, Me
Sharp, W. F., San Francisco, Cal
Stark, W. T., Kansas City, Mo.
Schaffer, C. A., Iowa City, Ia.
Snow, Geo. B., Buffalo, N. Y.
Sherwood, Jas. A., Buffalo, N. Y.
Taggart, W. H., Chicago, Ill.
Thompson, C. N., Chicago, Ill.
Thomas, G. A., Chicago, Ill.
Tileston, H. B., Louisville, Ky.
Taggart, C. C., Pittsburg, Pa.
Turner, M. E., Atlanta, Ga.
Taft, J., Ann Arbor, Mich.
Thorpe, W. K., Philadelphia, Pa.
Turner, C. R., Richmond, Va.
Taylor, B. S., Washington, D. C.
Truman, Jas., Philadelphia, Pa.
Tees, Ambler, Philadelphia, Pa.
Viberg, R. S., Ft. Wayne, Ind.
Varwig, Geo., Philadelphia, Pa.
Vignes, C. V., New Orleans, La.
Williams, B. M., Las Vegas, N.
Woodbury, C. E., Council Bluffs,
Wikoff, B. D., Chicago, Ill.
Weller, H. D., Indianapolis, Ind.
White, G. A., Santa Barbara, Ca
Wheelock, J. T., Waterbury, Vt.
Walker, W. W., New York, N. Y.
Wright, P. B., Milwaukee, Wis.
Walker, W. E., New Orleans, La.
Walton, J. R., Washington, D. C.
Wooley, U. G., Brooklyn, N. Y.
Whitstar, W. H., Cleveland, Ohio
Wellers, J. L., Rochester, N. Y.
Walden, R. C., Richmond, Va.
Willmott, J. B., Toronto, Ont.
Wilson, W. N., Indianapolis, Ind.
Wilbur, C. F., Philadelphia, Pa.
Wycoff, N. N., Trinidad, Colo.
Wettlaufer, C. E., Buffalo, N. Y.
Weber, G. A., Havana, Cuba.
Woodleigh, W. M., San Francisco Cal.
Weeks, E. B., Litchfield, Minn.
Whidon, D. D., Seattle, Wash.
Williams, W. P., Richmond, Va.
Weiss, O. A., Minneapolis, Minn.
Wilson, G. H., Cleveland, Ohio.
Weiss, F. D., New York, N. Y.
White, J. H., Atlanta, Ga.
Warren, Ger. W., Philadelphia, Pa
Young, H. N., Wilkesbarre, Pa.
Young, R. C., Atlanta, Ga.

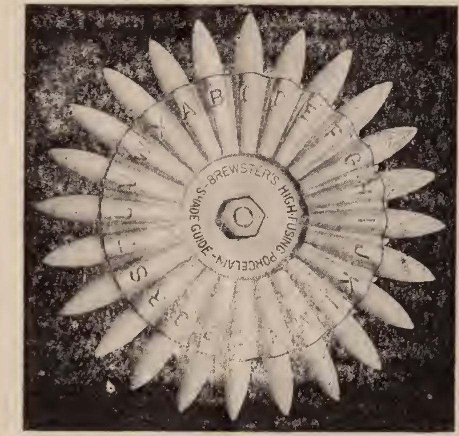
The Brewster Dental Company,

H. M. BREWSTER, *Secretary*

Brewster's High-Fusing Porcelain

WHEN buying a Porcelain outfit it is well to buy one that has received the endorsement of porcelain experts throughout the country. IT WILL SAVE YOU BOTH MONEY AND DISAPPOINTMENT.

The "Enamel Body" (of which these points are composed) has been repeatedly tested on the Dynamometer and found to register the same resistance to fracture as the best porcelain teeth



BREWSTER'S NEW SHADE GUIDE sent with his outfit of 27 bottles

Price
Outfit Complete
$12.50

Price of 15 Bottle Outfit is $10.00

For dealing with a large variety of shades, this is the most convenient form of Guide yet devised. It is light, compact, composed of nothing but aluminum and porcelain; may be thrown into the sterilizer and boiled. The shades are all in view at once, and by rotating opposite the teeth in the mouth, the correct shade is readily found. The points may be passed between the teeth.

HIGH=FUSING OIL COLORS, for use in Inlay Work, for changing the Color of Facings, Rubber Sets, etc. Write for paper on "Oil Colors" which gives directions for using.

Complete outfit, large size, $8.00
Complete outfit, small size, $5.50

For Sale by Dental Houses and by the Manufacturers

The Brewster Dental Company,

2544 Princeton Avenue, CHICAGO.

VOLUME XXXV. MAY, 1904. NUMBER 5.

THE AMERICAN
Journal of Dental Science

THIRD SERIES.

The Oldest Dental Magazine in the World. "Information" has been united with this Magazine.

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D. D. S., MADISON, WIS., U. S. A.

We are Making

a special offer of the American Journal of Dental Science for the balance of this year for twenty-five cents.

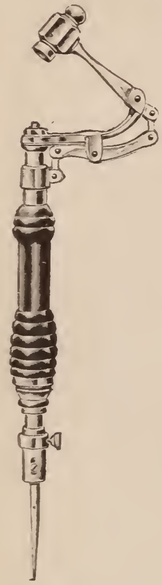
We want your subscription.

The Antes Improved

Automatic Hand Mallet

A Revolution in Automatic Hand Mallets which is . . .

Simple, Practical and Serviceable



The qualities necessary to make a first class automatic hand mallet are embodied in this invention as shown in the engraving. It gives a direct and elastic blow by means of the mallet, and the force is entirely and easily controlled at all times by the operator without change or setting any part of the instrument, simply by varying the pressure on the hand piece. A very condensing blow can be given with very little force on the hand piece. This mallet can be used at any angle with the greatest ease, and the shaft holding the point is so small that it does not fill the mouth and obstruct the sight. In using a curved plugger point, should it be desired, the direction of the point can be changed by simply loosening the thumb-screw, and turning the shaft holding the plugger point.

This mallet surpasses even the old way of hand-malleting in that it does not require an assistant to mallet for one; you always get the same kind of a blow and that squarely on the end of your instrument; and you can use it to advantage at times where it would be impossible to strike a blow with the hand-mallet; if desired you can use hand-pressure without striking a blow.

The parts of this mallet where the most wear comes are made of the best tool steel nickle plated; the hand-piece is made of hard black rubber. It is a neat and well-made instrument in every way, and it has been demonstrated that it is superior to any mallet on the market. It is simple and no spring to get weak and wear out.

The price of this mallet is **$10.00**

FOR SALE BY DENTAL DEALERS

MANUFACTURED BY

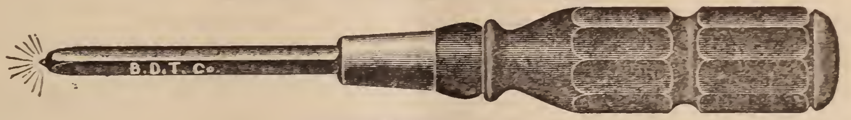
G. L. WOOD

GENESEO, ILL.

A Diamond Drill with a Point

Made from carefully selected stones, diamond fully exposed. and **actually centred.** We guarantee the **setting** and the accuracy in which they run. Especially adapted for drilling retaining points in porcelain teeth and **Etching Inlays.** Price, **$2.50.**

SAVE MONEY



CUT ONE-HALF SIZE

Don't throw away your grinding stones, but true them up with one of our **DIAMOND TURNING TOOLS,** and as a matter of fact they will cut better than they did orginally. Price, **$3.00.**

Our Cavity Shaper, being heavily charged with diamond dust, will be found very valuable in shaping cavities in artificial teeth. Should be run wet. Price, **60 cents** each.

Our Diamond Disk, being heavily charged with diamond dust by our new process, will be found very durable, and will cut on both sides as well as on the edge. These disks are very thin and will be found very valuable in separating teeth. Price, **$1.75** each.

Cavity Shaper

For sale by the leading Dental Depots, or sent, on receipt of price, by the manufacturers,

Diamond Disk

BOSTON DIAMOND TOOL CO.,

Nos. 114-116 Bedford St., Boston, Mass.

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,

Dental Hall, Cor. 33rd and Locust St.

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.

9 W. Franklin St.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903.
Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

WILBER F. LITCH, M. D., D. D. S., Dean,

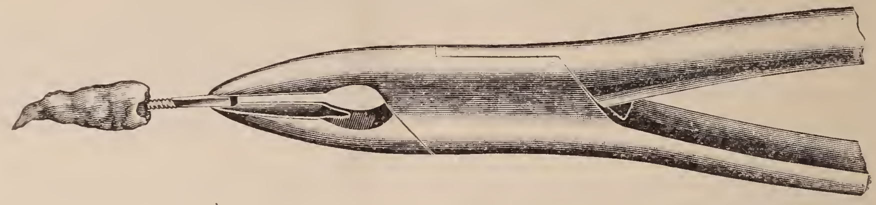
1507 Walnut St.

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary*.

Platinoid Crown Pins



Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

TABLE OF CONTENTS.

Porcelain Art. Inlays: Some Suggestions Conducive to Success in the Practice—H. W. Arthur 77
Dont's in Porcelain Inlays—W. T. Reeves............ 78
To What Extent Should Porcelain Displace Gold in the Dental Art?—J. Q. Byram......................... 83
Method of Baking a Low Fusing Inlay—Alexander Johnson 86
Contour Porcelain Inlays or Tips with Wire-Loop Attachment—W. A. Capon 86
Setting an Inlay—T. V. Smith 86
Preparing a Cavity for Porcelain Inlays—N. S. Jenkins 86
The Mechanical Separator—Garrett Newkirk 87
Gutta Percha as a Filling Material—W. L. Smith 90
Carbolic Acid—James F. Austin 91
A Painless Patient Is a Pleased Patient 94

THE AMERICAN
Journal of Dental Science.

THIRD SERIES.

THE OLDEST DENTAL MAGAZINE IN THE WORLD.

VOL. XXXV. MAY, 1904. NO. 5.

EDITOR:
WM. GIRD BEECROFT, D. D. S., Madison, Wis.
ASSOCIATE EDITORS:
JOHN P. BUCKLEY, Ph. G., D. D. S , Chicago.
ALBERT H. KETCHAM, D. D. S., Denver, Colo.
EMORY A. BRYANT, D. D S., Washington, D. C.
GEO. S MARTIN, D. D. S., L. D. S Toronto Junction, Ontario.

Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.

Address all communications, both business and editorial to the editor.

Entered as Second Class Matter, Madison, Wis.

PORCELAIN ART. INLAYS: SOME SUGGESTIONS CONDUCIVE TO SUCCESS IN THE PRACTICE.

By H. W. ARTHUR, D.D.S., Pittsburg, Pa.

Read before the Lake Erie Dental Society.

The highest art is said to be the concealing of art.

The inlay, applied with skill, is the ideal of art in operative dentistry. The use of the porcelain inlay was the outcome of the desire to conceal the ravages of caries. The practice has extended until the practicability of securing a matrix is the only limit to its application.

The time limit will not permit, nor is it necessary at this time to give in detail the methods of making porcelain inlays. These have been exploited so often and so recently, that even those who have not taken up the practice ought to be familiar with the procedures.

To succeed in the practice, each and every step should be conducted with care and exactness. The rules for the preparation of margins should be strictly observed. The outlines of cavities should be in definite curves and straight lines. The margins of cavities should be at right angles with the surfaces of the teeth. The margins should be smooth. This means something more than the ordinary care shown in the preparation of margins for the filling operation. Where cavities are of direct access, the forming of a matrix is not difficult. Proximal cavities, where two or more surfaces are involved, are more complicated. Dr. Reeves's method, the use of wet cotton, for general adaptation to the cavity, linen tape and a strip of rubber dam for margins, is most efficient. Where the cavity is difficult to approach and the space limited, as on proximal surfaces, a perfectly adapted matrix may be distorted in the removal. Exactness is so necessary that a slight distortion not observed, it may be, until the matrix is stripped from the inlay, must be guarded against. An efficient *expedient* in such cases is, after the matrix is fitted and resting in the cavity, in place, to fill the matrix with pure beeswax, not too soft. This should be trimmed to the margins, so that there will be no interference with the removal of the matrix. Beeswax may be also used as an expedient where, after stripping the matrix, the inlay is found defective in some part. A new matrix is adapted to the cavity, the inlay is placed in the matrix, held firmly in place and beeswax rather hard forced into the defective outlines. The beeswax can be readily removed by placing the matrix in the mouth of the muffle. It may be somewhat startling to the novice to see the inlay at first turn black, but every trace of the wax will burn off and disappear. To avoid any possible change in the form of the matrix, it may be invested in asbestos powder before attempting to remove the wax.

Inlays are the severest tests for porcelain shades; no more difficult task presents itself than that of accurate matching. It must be borne in mind that the dry shade of a tooth is not the same as the moist, that the shade matching the labial surface will be dark on the proximal (within the "shadow lines").

The selection of shades in the porcelain filling materials is a problem to be worked out in each particular case. Mass shade is not so perfect, nor is it so readily controlled, as the body and enamel shading. Shade effects are simplified by the use of shaded body for the bisque baking, and by the use of porcelain enamels, combined shades, or separate application; that is, one layer of shade over another, or surface blending.

The swaged matrix, which can be duplicated, affords a means for baking several inlays of different shading, from which a selection can be made for insertion.

A likely change in the appearance of the shade of the inlay when inserted in the oxyphosphate must not be lost sight of. To some extent this may be controlled. An enthusiastic porcelain inlay worker says: "An inlay built up in layers will prevent the reflection of the cement through from beneath." An increase in the number and variety of shades of the oxychloride is desirable.

An inlay when finished should have well defined margins; a feather edge may fracture and leave a ragged, imperfect margin. The time to avoid this is at the final touching up of the porcelain filling material, before placing it in the furnace. A fine camel's hair brush, slightly moistened, should be used, brushing towards the filling, taking away all fine particles.

One thing in the practice of making porcelain inlays has been very much simplified; that is, the fusing of the porcelain materials. The small furnaces, especially the electric, work admirably. A knowledge of the fusing points of porcelain materials once attained, definite results thereafter are assured.

With simple inlays the removal of the glaze from the imbedded side is all that is necessary to insure retention. With contour inlays, while some claim to have no difficulties, such has not been our experience. To overcome a difficulty of this kind in a superior cuspid, mesio-incisal angle to be restored, a resort was made to reducing the contour to a simple cavity, by restoring with gold the lingual and proximal surfaces and the incisal edge; the force of the bite being on the gold. A simple inlay was inserted in the gold, labial surface. In another case, mesial surface of an upper first bicuspid, an inlay, made for the mesial surface, extending beyond the mesial ridge, occlusal surface; the extension of the inlay, along the occlusal surface, was cut down, inside of the mesial ridge; a filling, previously inserted on the occlusal and distal surface, was partially cut out, shaped for retention, and refilled, overlapping the reduced portion of the inlay.

DONT'S IN PORCELAIN INLAYS.

By W. T. Reeves, D.D.S., Chicago, Ill.

Read before the Northern Ohio Dental Society.

Don't wait for a higher degree of perfection in inlay work before entering upon the work, because the time is at hand when every one should be prepared to do some of his filling with porcelain. There are numerous places where porcelain is the only material indicated and where today you should no more think of putting gold than you would think of putting amalgam. Besides, your patients are fast finding out that something better than gold can be put in their front teeth, something that harmonizes with the tooth, that is less taxation upon their nervous system to prepare the cavity, and altogether a desirable thing to have; they are asking for this kind of work, and if you are not prepared to do the work they go to some one who is. You cannot hold them much longer with the cry of "Fad, fad," that rolls off like "water from a duck's back." They have seen porcelain inlays in some friend's mouth, and know that they are doing all right. They size you up about right, that you can't do the work is the reason you cry "fad." Don't put it off any longer, but prepare yourself to do porcelain inlays.

Don't think that the esthetic is the only reason that porcelain should be used. That is one of the least of its many points of excellency. There is compatibility of material to tooth. Porcelain is the only permanent material we have that possesses this quality. Enough could be said on this one quality to make a paper by itself. There is permanency and preservation, two conditions that porcelain brings to the tooth to a greater extent than any other material.

Then there is ease of insertion, and that is a great feature in any operation—ease for both patient and operator. How many defective operations are allowed to pass because the operator is physically exhausted, or the patient is near nervous collapse, from the strain of a long, tedious gold operation? With porcelain all is different; patients hardly realize that they have been at the dentist's for two or three hours (until they get the bill), and leave the office with no dread of the future sitting. If it had been a gold operation, necessity is the only thing that would bring them back.

Don't make the mistake of thinking that porcelain is only indicated in a few places, and these of the simple order. Porcelain is only limited in range of application by the limitations of the operator. It is equally good for the young, the middle-aged and the old; everywhere and under all conditions, it is doing excellent service, and the more you use it the more you will find out and you will not be sorry.

Don't make up your opinion or judge by the failures you may have seen. If you decided what materials you would use and upon your *modus operandi* by the failures that come under your observation, would you be using gold today? I think not. You have no means of knowing what was the cause that brought about failure. It may have been gross incompetency on the part of the operator; he may have known nothing of the operative technic and still less of the material he was using. If, when he was a student, he had tried to accomplish an equal task with gold, with no better preparation, you would have laughed at him. Without thorough technic preparation, no better results should be expected than from the student with his first gold filling.

Don't think an outfit of bodies and a furnace is all there is to it—that when you have procured these you can begin on the next patient that comes in, and make an inlay, for you will be grievously disappointed.

Don't think that watching a clinic gives you all the insight you need of the technic, and that you can go to your office and do the same thing, for you will find that you are up against it,—that what looked so easy is quite another thing when you try it on a patient; that there are lots of little details that go to make up the sum total of success that have escaped you, and that you are stumped to know what to do; your patient will soon discover that you are stumbling along and will lose confidence in your ability to successfully accomplish the task. That would still further hamper you, and the result would be a failure. Your patients would realize that you had been experimenting on them. It is all right to experiment on some one else, but no one likes to be experimented on. Prepare yourself by the best technic instructions you can get; that puts you in possession of his experimentation and experience, and you begin at the point your instructor has attained. Go to the laboratory, and by careful dummy-work assimilate those instructions so that your patient will not know whether it is your first, tenth, or hundredth inlay. If it is not possible for you to make your start through this source, begin by reading and studying the literature up to date; try to sift the wheat from the chaff; adopt that which seems best to you; prove it by your work in the laboratory. Hold fast to the good and discard that which is inefficient in your hands, even if you have to begin all over again. This is a slower method, but what one gets by hard knocks usually sticks, and success follows earnest effort.

Don't think you can gain the knowledge of how to bake porcelain by hearsay or reading. Everyone must gain this through personal experience; the different stages of fusing can be shown and described, but experimentation is the only source of knowledge that will enable one to tell by observation just what degree of fusing has taken place. Porcelain may be a hard master, but, if understood, is a willing servant.

Don't pin your faith to what you have seen demonstrated at a table clinic. There are several methods that make awful nice table clinics,—interesting, entertaining, yes, fascinating; but if it was a practical inlay they were making for a patient, you would find the item of time was too expensive a feature for the busy man to seriously think of following.

Don't worship at golden altars or follow after false gods. Look on high (high-fusing porcelain) for your guiding star, and you will not have put your confidence in something that will fail you, and you will not be trailing behind.

Don't try to compound bodies. There are manufacturers who have made this a life study, and they can do this much better than you can ever hope to do. Learn the different bodies so that you can produce results. Study along this line will benefit yourself and the profession.

Don't try to make an inlay without first securing working space before beginning the operation. No more separation is needed than should be had for any other material, but it is absolutely necessary to have working space. You can't put in a flat inlay, but having proper space you will restore perfect contour, perfect contact points, and preserve the interproximal space better than with any other material. These three conditions will be appreciated by your patients, for it will put their teeth in a comfortable condition for masticating. You will be benefited and the standard of your work raised, for, finding how much your patients appreciate this change, you will separate for all other work and not consider it time wasted.

Don't set an inlay that is not a perfect fit at all points. With porcelain it is possible for you to know before it is too late to correct, whether there is any defect in adaptation, contour or color; if lacking in adaptation or contour, make another inlay. There is no physical strain upon yourself or patient to keep you from doing so. Many a defective piece of work is allowed to go through because the operator is not in condition to make a second gold filling. In making a second inlay, the effect upon the operator is two-fold: a failure overcome is a stimulus to renewed effort, and the moral tone of the operator has been raised.

Don't try to select the color your inlay is to be by taking the tooth-guide and selecting a facing that seems to match the tooth, and then working to that color, for you will be working to something once removed from the original, and no matter how well it might harmonize with the adjoining teeth if used as a crown, it would not match either tooth if a corner of the facing was cut off and placed against the tooth.

Don't take the shade-guide furnished with each outfit of bodies and try to select one that is a match for the tooth. The colors in the tooth vary from top to bottom, and you must have them in the same relative position in your inlay, in order to have inlay match tooth. Use the shade-guide, that by comparison with the tooth you can determine what colors you see in the tooth. The shade-guide gives you the color the body will be if you bake the same bulk and to a full glaze; you can get any shade of a given color by the thickness of the layer you bake.

Don't bake your inlay all of one body, even if you could make it in one baking, for your inlay would only match at one point and at the others would be off color, and then you would be up against what they call the "shadow problem."

Build in layers, bake in your colors strong enough that reflecting through an overlying or enamel layer gives you the colors you want; this will give you translucency and is the only way you can produce translucency; baking in layers, the strata break up light absorption and refraction and your inlay will look the same from all points of view. Baking the layers will prevent the cement showing through to the greatest extent possible.

Don't grind an inlay after it is set on any surface other than the grinding surface of molars and bicuspids, and the cutting edges of anterior teeth. All grinding that is necessary should be done before the matrix is removed, and then returned to the furnace and glazed. The glazed surface of porcelain is a protection to adjoining tooth surfaces.

Don't undercut your inlay with diamond disc or knife-edge stones; use hydrofluoric acid; that will remove the glaze and leave a roughened surface that cement will adhere to, and not take away from close adaptation.

Don't try to neutralize the acid. There is a fine, palpable powder as the result of the action of the acid, and this must be removed mechanically or it will interfere with the retention of the inlay; use water and a stiff bristle brush.

Don't set an inlay without putting on the rubber dam wherever it is possible to do so. Always have pressure either by wedge or ligature, and leave thirty minutes before removing dam; cement setting under pressure gives best results and prevents expansion making a noticeable joint.

Don't remove the excess cement until after you have removed the dam; after the saliva has bathed the tooth, the cement will come off easily with no danger of dislodging the inlay.

Don't try to remove the slight line of cement at the joint; let that wear away; it will wear away in five or six days.

Don't fail to tell your patient that the tooth has dried out under the rubber dam and is several shades lighter, and that it will be several hours before it is back to color, and that the inlay will look better a week hence than it does the first day.

Don't wait for others to discuss the subject or ask questions. A question that may seem trivial to you may be what lots of others would like to have answered.

DISCUSSION.

Dr. H. F. Harvey, Cleveland, O.: The first thing Dr. Reeves advises is not to wait until we have arrived at perfection in this work before undertaking to practice it. We should aim to come as near perfection as possible, and the only way to do this is to follow the advice he has given us in his paper; that is, get all the technical information we can and then go to the laboratory and practice. We cannot expect to arrive at perfection in the first operation or in a short time. This work certainly requires as much skill and care in every step of the work as anything else that we do. There are several reasons why this work should come into favor: first the condition of the patient; second, the condition of the teeth, and third, the esthetic side of the question. I hardly think the argument that it is easy for ourselves should have much weight.

The doctor says that we need no more space than we do for other fillings. I think this work requires more space than is needed for gold fillings. Another advantage is that you can correct imperfections. The lessening of the physical strain on the patient is certainly quite an advantage when you come to undertake a large filling.

Dr. S. B. Dewey, Cleveland, O.: Porcelain inlay work has come to stay. As the essayist says, we are not going to gain any knowledge or perfection if we wait for someone else to do the work. We must do it ourselves. I think in this matter of porcelain work not as many of us will become experts as with gold. It requires a person with a high conception of art to be able to select the colors and shade different colors to different teeth, and blend a variety of shades on the same tooth. We may not be artistic enough to produce the result that Dr. Reeves produces every day. It will take long years of practice before some of us can do this. Many teeth can be saved by this method and made useful and beautiful, which would otherwise disfigure the mouth of the wearer. I agree with the essayist that it is much easier in many cases for both patient and operator, and for those patients who cannot stand the long gold operations it is really a Godsend.

A man to be successful in this work must be able to give close attention to details. In reference to selecting colors: It helps me greatly not to match the tooth by the shade-guide, but look into the tooth and use the guide in comparison to what is seen in the tooth. Do not be too hasty in brushing off the excess of cement; it is better to leave it on for a while, although for a short time it may look unsightly.

Dr. W. G. Ebersole, Cleveland, O.: Porcelain inlay work has come to stay, and if we are going to make a success of it, we have got to work and work hard. There is no doubt of its being easy for the patient. I would advise the beginner to work a great deal on models and secure a certain degree of efficiency before attempting to put this work in the mouth. I am a disciple of porcelain work with high-fusing bodies.

Dr. L. L. Barber, Cleveland, O.: A matter of importance is the overcoming of thermal changes in the tooth. I believe there will be less cutting to do in the very sensitive part of the tooth. You have to remove the decay from the bottom of the cavity and that is about all you have to do. There are certain low-fusing bodies on the market that will stand and keep their color all right in some cases. If you have to grind the surface after your filling is made they will not keep their color, but you do not get the result that you do with high-fusing bodies which can be depended upon in all cases.

Dr. W. A. Siddall, Cleveland, O.: I have put in some fillings, and my trouble was not in trying to get them to come out, but I wished very much that they would stay in. I have learned also that when I start on a porcelain filling I do not know when I will be through, whether this week or next. Is it wise in corner teeth to make a step such as you would make for a gold filling, and also in bicuspid fillings where you can cut the matrix out? I have found that the cement will stick to the porcelain but will not stick to the tooth. What is the objection to slight undercuts?

Dr. Reeves, Chicago, Ill.: Dr. Harvey asked about space. He thought there were places where he could put gold fillings in with less space than necessary for an inlay. I think there are more places where you will get along with less space for inlays than otherwise. In molars and bicuspids you will surely get along with less space than you would need for gold fillings and have the full contour restored and get contact points that are simply perfection.

Dr. Dewey thinks there will not be as many expert operators in porcelain as in gold. There is where he makes a mistake. Porcelain work is in its infancy, we might say, having been introduced in the last five years, but I think that today you can find more expert inlay workers—ten to one—than you can find in the same grade of work with gold. You can't any of you come very near counting on the fingers of your two hands those operators whom you look up to as being good gold operators in this country. I think you can find twice as many as this who excel in porcelain inlay work in Chicago alone. I know a great many operators who are doing extremely good work in inlay, much better than they can do with gold, and they have only been working at it a year. This is something to be considered. You will come up so fast to the point of doing excellent work, if you start out earnestly, that it will surprise you how quickly you will be using it everywhere. The labial surfaces of anteriors are about the hardest you will have to deal with. Begin with the simple cavity for your first work. I believe any operator, wherever located, if he will give one-tenth of the time to the technic of porcelain inlay work that he gave to learning to put in gold fillings, he will have the best of results in this work. You can always be able to find the joint. You cannot slide across as you can with gold fillings. You will look into the tooth very carefully before discovering that there are inlays in the tooth.

Dr. Billings asked about corners. There are no corners where I would hesitate to place inlays. In any place where we can get cavity formation, porcelain can be used. The amount of undercutting you would do I do not think would give you any additional retention. The matrix must be adapted to the interior of the cavity and then the inlay set under pressure. A great many cases where you see the line at the margin, there has not been sufficient pressure. In regard to time, the inlay work will be accomplished, taking cavity for cavity, in a great deal less time than gold work. I have always used Harvard cement. There is a new cement now on the market which sets quicker than the original Harvard cement, but I have not used this on account of its producing a different mechanical action.

Dr. Price asked about platinum in small cavities. I use one one-thousandth. If the cavity is a pin-head cavity, use gold.

Dr. Price: Suppose the small cavity shows, would you enlarge it to the size of a No. 4 bur?

Dr. Reeves: I would. The question of cavity preparation I can hardly describe so that you can get a correct idea of it. The main thing is to remove all decay to good, sound, glistening enamel, get a good seating form for setting purposes so that after the matrix is taken off you could not tell which end is which, they are so near alike.

Someone asks, what about the price for porcelain inlay work as compared with the price for gold work? You should get from 25 per cent. to 30 per cent. more for porcelain inlay work than for gold.—*Summary.*

TO WHAT EXTENT SHOULD PORCELAIN DISPLACE GOLD IN THE DENTAL ART?

By J. Q. Byram, Indianapolis.

Porcelain teeth were introduced in France about 1808. About 1825 M. Planton, a Frenchman, came to Philadelphia, bringing with him some porcelain teeth, such as were used in his native country. Samuel W. Stockton (an uncle of Samuel W. White), a jeweler by trade, who was very much interested in ceramics, became interested in the teeth and soon produced some that were far superior to the French product. It is said that Mr. Stockton carried his formulæ "in his head," and when he ceased to manufacture teeth, he refused to divulge his secret. So those who engaged in the manufacture of artificial teeth at this time were compelled to pass through a long experimental period. But after years of constant endeavor, there has been such an improvement in porcelain that today we are not only able to procure from the manufacturer teeth that are artistic and strong, but porcelain bodies, which enable the dentist to practice dental ceramics with a marked degree of success.

Dr. Charles H. Land says:* "Porcelain as applied to dentistry prior to the year 1885 was exclusively confined to artificial teeth, and a few cavity stoppers. The dawn of the new era which revealed a field of greater scope and greater value was first made known to the profession by the publication of an article in the Independent Practitioner of August, 1886, entitled 'A New System of Restoring Badly Decayed Teeth.'"

With the birth of the new century began the development of the dental ceramic art with such great enthusiasm and improvement that no up-to-date dentist can practice artistic dentistry without adding porcelain to the list of filling materials. If porcelain is to displace gold in the dental art, we must determine to what extent it may be used with safety. For any material tried so long as gold, cannot be cast aside for a comparatively new one unless it can be demonstrated beyond a doubt that the new material will do what is claimed for it.

Ceramics, as applied to the dental art, may be classified into: (1) The products of the manufacturer, and under this should be classed all forms of porcelain teeth (including crowns) and porcelain bodies. (2) The products of the dentist. This may be divided, first, into the replacement of lost teeth, as in dentures and bridges; second, the restoration of the entire crown of the tooth; third, the restoration of a portion of a crown, as in a porcelain tip or an inlay.

The difficulty of construction and the expense of a continuous gum denture cause it to be a denture for the few. It is to be regretted that more platino-porcelain bridges are not constructed. They are especially indicated in spaces between the cuspids. If the superior incisors have been extracted for a length of time and there is a sinking of the lip, it is quite impossible to restore this condition with a gold-porcelain bridge. A porcelan surface is far superior to gold for mastication, so in all cases where the length of the teeth will permit of a large enough mass of porcelain for strength, platino-porcelain bridges between cuspids and molars may be used. In spaces between cuspids and molars in the inferior arch, there are but few cases where the gold-porcelain bridge with the occlusal surface of gold, has advantages over the all-gold bridge, and unless a bridge with the occlusal surface of porcelain is constructed the all-gold bridge should be inserted.

---

*Dental Cosmos, June, 1903.

If there is any branch of dentistry in which porcelain can almost displace gold, it is in crowns. To say that all teeth should be crowned with porcelain is just as absurd as to say all teeth should be filled with porcelain. There is a great deal said about educating the public to a higher appreciation of artistic dentistry, but until we educate the dentist in esthetics we cannot hope for rapid progress. At a recent dental meeting there were at least fifteen dentists persent, with gold crowns adjusted on incisors and cuspids. Imagine one of them teaching esthetic dentistry. There are so many forms of platino-porcelain and gold-porcelain crowns, that there is no excuse for adjusting gold crowns on incisors, cuspids and bicuspids, except in cases of excessive abrasion and where the teeth are quite short.

One criticism offered to the platino-porcelain crown is that the platinum shows at the cervical margin, or in course of time, it may cause the gum to have a bluish tinge. If caps are constructed by the following method, there will be no platinum exposed on the labial or buccal surfaces, and no opportunity for the gum to turn blue. Prepare the root so that opposite walls are parallel. Grind the face of the root flat, and rootward to the margin of the gum in the middle third. Take a wire measurement and fit a platinum band to the root. Grind the labial one-third of the root and band concave, mesio-distally, following the curvature of the gingival line. Remove the band and tack the lingual portion to the floor with the smallest amount of platinum solder. Adjust the band to the root and burnish the floor to it. This allows the labial one-third of the cap to follow the curvature of the gingival line, and if the labial portion of the face of the root has been ground just beneath the gum margin, the entire labial portion of the band will be covered by the gum. In case of recession of the gum, or where it is deemed advisable to expose the metal on the labial or buccal surface, the platinum may be covered with pure gold by placing small pieces on the surface to be covered, and fusing in the furnace.

As a filling material, porcelain is attracting the universal attention of the profession at the present time. And to what extent it will displace gold, depends upon the skill of the dentist and his clientele. There is a diversity of opinion of the practicability of porcelain as a general filling material, and may of the best operators seem skeptical about its advantages over gold. Some of the porcelain enthusiasts have done more to cause well founded skepticism than the careful, conservative advocates can remove in a decade.

Dr. W. T. Reeves goes so far as to say: *"There are scarcely any cavities where gold can be utilized that porcelain cannot be successfully used, and there are so many places and conditions under which gold cannot be used, and where porcelain will be a perfect filling material with which to restore the lost tooth structure, that I place it first in the point of applicability." In the same article he says: "After the cement is completely crystallized, a thin porcelain filling in the occlusal surface of a molar will have the full strength of the whole tooth to resist the masticating stress and, there is no danger of fracture."

Dr. Reeves, in speaking of the retention of porcelain inlays, says: **"I believe inlays depend for their strength of retention upon the close adaptation and crystallization of cement under pressure. If two pieces of glass are adapted with water between them to exclude the air, one cannot forcibly pull them apart. A joiner prepares the surfaces of two pieces of wood so that they are in close adaptation to each other, and, placing glue between them, clamps them in a vise and allows it to harden. If there be any appreciable amount of glue, there wil be no strength of joints. There is no strength in the glue. The strength is due to close adaptation and crystallization under pressure. If this be true, there is no need of inflicting the additional pain upon the patient that the self-retentive style of cavity formation would entail."

---

*Dental Review, May, 1902.

**International Dental Journal, July, 1903.

Such statements from enthusiastic experts will tend to get porcelain in ill repute, for the inexperienced will follow the teaching of the experts and his judgment wil be misguided by their teachings. Many operations fail, not because of lack of skill of the operator, but on account of poor judgment and misinformation. Only a few days ago, a dentist of reputation as an operator, brought a matrix for an inlay to be baked. The cavity was prepared in such a manner that all walls converged toward the pulpal wall and instead of the walls forming angles, they formed curves. When asked how he expected the inlay to be retained, his reply was, "By the cement." (A case of misguided judgment.) It is fallacy to say that inlays can be made to fit cavities so tight that their adaptation can be compared to two pieces of glass rubbed together or to two pieces of wood glued together.

Dr. C. N. Johnson, one of the safest teachers to follow, says of inlays: *"The demand for porcelain inlays sprang from the indiscriminate display of gold in the anterior part of the mouth, whereby the esthetic sense of the people was too frequently offended. If the profession had more carefully studied the possibilities of platinum and gold for harmonizing shades on exposed surfaces, there never would have developed the reflection upon the dental art that has been so justly urged against it, but it still remains true that there are certain cavities in which a well-made porcelain inlay is more artistic in appearance than it is possible to attain with any metal filling. It is also true that inlay work is less exhausting to the patient than extensive filling-building, and these two considerations should induce every operator to so perfect himself in inlay work that he is enabled to give his patients the benefit of the highest class of skill in those cases where inlays are indicated."

"The desirability of controlling caries in the anterior part of the mouth without the necessity for an objectionable display of gold, as also would the possibility of saving badly decayed teeth in any location where the insertion of gold foil is contraindicated on account of too great tax on the patient or too much infliction on the impaired peridental membrane by the use of the mallet. Crown work as a result of the conditions just indicated, has too often been resorted to by operators in cases of extended decay at a period earlir than would make crowning more justifiable if some more feasible means could be employed to tide the tooth over a number of years. It is in cases of this kind that inlay work finds its most legitimate field."

It seems that the inexperienced would obtain better results in inlay work to follow the suggestions of the conservative teachers and not be carried away with the idea that they can use porcelain as a universal filling material because a few experts do. The indications for porcelain inlays have been discussed so much of late that every dentist who reads the journals has some idea of their application.

All labial and buccal cavities can be filled with porcelain to a better advantage than with gold. The patient is relieved of the unpleasantness of adjusting the rubber dam, the excruciating pain caused by the use of cervical clamps, and the sensitivity to thermal changes. Inlays can be made for such cavities that will harmonize with the natural teeth to such a degree that only the expert can detect them.

To what extent porcelain may be used in simple approximal, approximo-incisal and approximo-occlusal cavities, depends largely on stress. It is doubtful whether an approximal incisal or an approximo-occlusal cavity can be so prepared, and an inlay so constructed that it will resist stress to the same extent that a gold filling will. The friability of porcelain prevents the step portion of the filling from adding as much resistance as an equal mass of gold. Gold is a better filling material than porcelain unless a large portion of the occlusal surfaces of bicuspids and molars is in-

---

*Principles and Practice of Filling Teeth, 2d Edition.

volved. It is impossible to construct thin occlusal inlays without thin margins which are liable to fracture.

Those cases involving the incisal one-third or more of incisors and cuspids may be restored with porcelain by combining the pnciples of inlays and crowns. In case of a malformed incisor or cuspid, a porcelain tip can be adjusted to the tooth which will give as good service as a gold tip and better than a gold filling, and from the esthetic point of view it has every advantage over gold. The occlusal portion of bicuspids and molars may be restored with porcelain, but unless enough of the tooth is involved to make a large mass, there will be insufficient strength in the porcelain to withstand the force of mastication.

The fact that inlays are held in position with cement has prevented many operators from placing confidence in them. The permanency of inlays depends on their close adaptation to the cavity walls, for it has been found that the solution of the thin film of cement around the inlay is only for a slight depth, leaving the cavity sealed so that there seems to be no recurrence of decay.—*American Dental Journal.*

METHOD OF BAKING A LOW-FUSING INLAY.

Dr. Alexander Jameson, Indianapolis, Ind.

Take a cavity impression with "Archite;" mount it in a metal ring in a matrix of modeling compound. He places this ring in his swaging device and swages a small sheet or plate of pure gold over it. He takes away the resulting matrix and anneals it, then replaces on cavity impression, and puts a considerable quantity of moss-fiber gold upon it, and swages strongly. This gives him a matrix that is unshrinking and unchanging for all baking which he desires to do. With this matrix he bakes his low fusing body over a Bunsen burner. The advantages of this method are absolute accuracy of fit, minimum amount of time expended, and dispensing with a furnace.—Summary.

CONTOUR PORCELAIN INLAYS OR TIPS WITH WIRE-LOOP ATTACHMENT.

W. A. CAPON, PHILADELPHIA.

Burnish thin platinum over the surface of the natural tooth to be repaired, and fit a loop or pin of platinum wire, No. 24 gauge, to the interior of the cavity; then hold the matrix and wire in position on tooth, and apply porcelain body mixed with water and gum tragacanth. Carefully draw the combination from the tooth and fuse in furnace. This method avoids soldering. Dr. Capon used the method in the formation of a porcelain tip and corner with a loop and pin attachment for an upper central incisor.—*Cosmos.*

SETTING AN INLAY.

T. V. SMITH, PHILADELPHIA.

After the inlay has been inserted, scrape away excess cement and varnish with sandarach. Then apply paraffin, which will adhere for a much longer time to the sandarach than to the surface of inlay or tooth. Never have the rubber dam over the tooth when trying to match a shade, because when dry teeth are several shades lighter.

Excellent results may be obtained by the use of porcelain enamel paints, both by fusing on the surface of an inlay and under another modifying shade of enamel body.—*Extract International.*

PREPARING A CAVITY FOR PORCELAIN INLAYS.

N. S. JENKINS, DRESDEN, GER.

It is indispensable that the cavity should be shaped so that the matrix can be perfectly made and withdrawn without changing the shape in ever so slight a degree. To this we need not hesitate to sacrifice frail walls, especially upon occlusal surfaces, as the crowns of molars and bicuspids and the palatal walls of upper incisors. In all approximal cavities space must be gained by wedging or filing. At all occlusal surfaces the walls of the cavity must be at right angles, and thin edges should be avoided as far as possible. All the walls of the cavity should be as nearly at right angles as circumstances permit. Occasionally some decayed dentin can be allowed to remain until the completed filling is ready to be set, if its premature removal would necessitate undercuts, but usually every particle of decay can be removed with advantage in the first preparation of the cavity. All the edges should be clearly defined and well polished, that it may be possible to burnish the edges without injury to the matrix. It is well to polish also the interior of the cavity, as a smooth surface facilitates the removal of the matrix.—*International.*

THE MECHANICAL SEPARATOR.

By Garrett Newkirk, M.D., Los Angeles, Cal.

It is a truism that free separation, plenty of room, is essential to the proper filling of proximal cavities in teeth and the restoration of natural contour.

This involves two things: first, the obtaining of the space, which may be by slow pressure, necessary in many cases; second, the holding of the space, completely and steadily during the operation. These are two distinct and equally important considerations. In many cases both can be met by the mechanical separator at one sitting; in others, only the latter. There are no rules universal, not subject to exception. Neither is there an "universal" separator which can be depended on to take the place of those adapted to the different regions of the mouth. The "universal" separator is better than none, very often useful, but its principal play is to the pocketbook. It says, "Get me; I will do *all* the work done by the various forms, and *save the cost.*" It appeals to the general desire of mankind to get the most for the least, and something for nothing: an idea full of delusions and snares.

All of the single-bow separators have this objectional feature, that one point crowds into the proximal space precisely where it is not wanted—down upon the gum, also preventing the passage of finishing strips and instruments.

The only complete representation we have of mechanical separation finds expression in the set invented by Dr. S. G. Perry, originally four in number, now six. These cost with box and wrenches $24. About $3 of this amount is for the last named. No need for the case, and any one ought to be able to make his own wrenches. The set proper, less frills, ought to be about $20.

The advantages of the Perry set are that there is something adapted to every place, carefully thought out, and most ingeniously applied. Few are cases indeed where, by reason of unusual forms or relations of the teeth, these separators will not be applicable. As to cost, I can hardly imagine a price on these instruments that would tempt me to get on without them.

Let me enumerate briefly their various spheres of usefulness.

First:

EXAMINATION OF TEETH FOR DECAY.

It is not the rule, I think, that examinations are thorough enough for small cavities and incipient decay upon the proximal surfaces of the teeth near the contact points. Very frequently, owing to the width of their surfaces and their close relations, it is out of the question that an accurate examination can be made without a separation which will admit the rays of light freely to the suspected points. As a rule, I believe, the examiner is disposed to satisfy himself and his patient with the passage of a piece of silk. If this can be done without cutting or a perceptible fraying of the thread he assumes that no decay exists. And the supposition is quite as apt to be wrong as right. No examination has a right to be called complete unless the operator has inspected every danger point upon very tooth, and *knows*, not guesses, the condition of each.

In many cases this cannot be done without the application of the rubber dam and mechanical separation of the proximal surfaces. This applies to the upper teeth from the mesial line to the last intermolar space: and to the lower generally with the exception of the inter-incisal and cuspid.

Whenever there is uncertainty and question, it is easy, only the matter of a little time, to apply the dam to six or more teeth, then go from point to point with the separator, obtaining easily sufficient space for the examination needed without pain and but little discomfort to the patient. If a surface is found which needs but polishing, this may be done at once with oiled strips. If a considerable cavity is discovered, a thin chisel and small bur opens it up for the insertion of gutta-percha as a further separator and temporary stopping. When the operator gets through with his series of explorations, he knows that he has been *thorough* and done the right thing.

Second:

IN PREPARATION OF CAVITIES.

Not only is added space necessary for the insertion of fillings, but previous to that for the proper preparation of the cavity. Here the Perry separator will often give it just the room needed with out previous wedging, or it will *hold* and increase the space already obtained. And it holds the teeth *steady*, so that the instrument employed, chisel, excavator or bur, can be used with greater accuracy and less pain, dread or stress on the part of the patient. This, especially in cases where the teeth are not firm, is a very important consideration.

Third:

PRELIMINARY TO WEDGING AND TEMPORARY STOPPINGS.

When it is evident that sufficient space cannot be had with the mechanical separator alone, and where faults of previous operations have to be remedied, where a close approximal space needs to be restored, the Perry separator is valuable at the beginning. It is less painful to the patient to open sufficiently for wood or gutta-percha or cotton, than to bear the teasing, gnawing, tormenting piece of a rubber band, so often inserted for that purpose.

And when cavities are opened up sufficiently for gutta-percha stoppings, which are also to act as wedges, the separators are, with me, indispensable in a large proportion of cases.

Fourth:

FOR THE INSERTION OF GOLD FILLINGS.

Just as for cavity preparation, the Perry separator holds the teeth in steady position, makes the plugger more accurate and positive, while lessening the discomfort of the patient, always providing, of course, that the screw force is carefully applied and stopped at the proper point. No one is justified, ever, in making his patient really suffer by the use of a mechanical separator. It is not necessary.

In the insertion of gold fillings, the application of the instrument should be gently at first, then slightly increased from time to time as the filling progresses, to the full extension of the contact point and final finish of the same. Then the separator may be employed as a test. Removing the force, allowing the teeth to fall together, one may judge in a few moments, by using floss silk, whether the contour is too full, or just right. If the former, the screw is turned on again, and a little more removed with thin, fine, oiled cuttlefish strips. The perfect point of contact cannot, as we know, *always* be determined at once. Days afterward, it may be, the discovery will be made by the patient or the operator that the floss cannot be passed at all. The separator can be placed, without the dam, and the tape again passed as before said. How much better this method than the oft-used scratching saw, or the file which invariably cuts away too much, leaving the latter condition worse than the first.

Again, with due deference to certain gentlemen, I will say, for one, that although I do myself occasionally use a matrix for gold fillings, I have just a little more confidence in those built up without it. The separator enables us to dispense with the matrix in most cases where we might be otherwise tempted to employ it.

Fifth:

PREPARATORY TO FILLING WITH AMALGAM OR CEMENT.

The separator gives the advantages before described for preparation and initial space. The teeth are held apart and steady up to the moment of applying the matrix, which should, I believe, always be employed in proximo-occlusal fillings of prastic materials. Let me deviate in passing to say that the king of matrices for everyday use is the *Ivory;* for it fits, and demands only one interproximal space for itself. Like every other matrix, it requires occasionally the supplemental wedge, wood or steel, at the cervical border. When relaxed it comes out easily, "leting go" at all points but the "contact," from which it is easily worked free.

For the finishing of amalgam fillings in the contact region, which should never be done until the material is hard, the sepagold.

Sixth:

SOME LITTLE POINTS TO REMEMBER.

To adjust the separator easily and deftly takes practice, and the operater must not expect smooth sailing in every case at the first. With the bicuspid and molar forms, the lip is likely to be crowded upward uncomfortably. To relieve this at once, a smooth steel instrument should be inserted at the angle of the mouth and passed gently forward, lifting the lip over.

Whenever the separating points go higher than they should, crowding uncomfortably upon the soft tissues, the screws should be relaxed, the points held in the right position, while pieces of gutta-percha are warmed and crowded under the bows. When these are hard (and the hardening may be hastened with the chip-blower),th upward movement of the points is prevented and separation proceeded with as usual.

Of course the force must be applied, not all at once, but a little at a time with periods of rest. Only tact and care are necessary. One has to be governed by the conditions present in each case; the sensations of the patient, the mobility of the teeth, and amount of space required.

The screws should be kept carefully oiled, both for ease of working and to prevent their wearing out.

Here, as in relation to all operative procedures, patients have their idiosyncrasies. One will disclaim any sense of discomfort whatever, another suffers more or fears that he will. Once a year, perhaps, a patient will present with whom the separator is impracticable, by reason of unusual sensitiveness of the peridental tissues, or nervous timidity.

Finally, much depends upon our attitude when the instrument is first used. We must tell the patient just what we wish to do and why, and what he may expect.

If we explain to the patient, old or young, the necessity of space, the advantages of the separator, often over days of slow wedging; if we assure them that we shall be careful not to carry the pressure beyond the point of reasonable endurance on their part, if we are likewise careful to consult with him or her as to the degree of pressure that may be easily borne, we shall have very little trouble in the use of this most valuable assistant, *the mechanical separator.*

Since writing the above I have had a patient presenting a case where the

PRACTICAL APPLICATION OF THE SEPARATOR

was well demonstrated.

A lady tourist, from an eastern city, called to have me, if possible, reset a porcelain inlay in a central incisor, distal surface.

It was loose, sure enough, but prevented from falling out by the adjacent lateral, which was a Logan crown.

I said, "The inlay was certainly inserted before the crown in this case."

She replied that such was the case. At first it seemed quite impossible that the inlay could be taken out intact without injury to the cavity margin, or without removing the crown. It occurred to me, however, to see what the Perry separator would do.

In a few minutes time, and with no serious discomfort to the patient, sufficient space had been obtained for the easy removal of the inlay and for its replacement in a manner which I hope will make it permanent.

Of course, one might have succeeded by the use of a wooden wedge, but certainly not with the same positiveness or satisfaction.

NOTE.

Still later, in a conversation with Dr. G. V. Black, he called my attention to the S. S. White "Universal" which I have never tried practically. Dr Black thinks that it *will* do the work if properly applied in nearly every instance and that it is the most free from objectionable features of any of its class. I have since examined this separator. It seems to represent an attempt and a most ingenious one to carry out the Perry principle in a single instrument. But it is necessarily expensive, larger and more complicated, and it seems to me far preferable that one should shrink his purse, or stretch his credit, just a little more, and possess the real thing; a source of daily comfort and "a joy forever."

Summary.

GUTTA PERCHA AS A FILLING MATERIAL.

By DR. W. L. SMITH, MACON, GA.

After consulting a number of authorities on the subject of gutta percha, it seems that the oldest writers have given so little space to this subject in their writings as to have passed it by as almost unworthy of notice. I think this very useful and necessary material should be more carefully looked after, and given a more conspicuous place among the various number of filling materials than it now occupies.

I believe why so few are using it to-day is a lack of a proper knowledge of its manipulative qualities and many failures resulting therefrom. They have grown discouraged and laid it aside as useless. I must say that my first efforts in using it were of a discouraging nature. It is an easy material when once we learn how, when and where to use it, difficult until this familiarity is acquired.

In the preparaton of cavities to be filled with this material, it is necessary to prepare them as thoroughly, as for any other stopping that we desire to obtain good results from. In speaking of the kind that I have observed the most favorable results from, is that which comes to us in sheets, and such as many dentists use in a base plate in mechanical dentistry, pink gutta percha. In selecting suitable cavities for this material, I would use it in the proximal cavities of the cuspids, and in that type that are tinted blue, lateral incisors too frail to fill with gold and in the teeth of children, and in exceedingly sensitive teeth, when I wish to avoid the thermal changes that so often result in the destruction of the pulps, when filling teeth without gold and amalgam, in the buccal cavities of the molars, and especially have I seen splendid results in filling the lower front teeth of children. I would be careful in the preparation of the cavities and protect them with the rubber dam properly adjusted, in all cases when practicable, and liberal separation made to give you plenty of room for your work. With these preliminary steps taken, it is necessary to have a convenient vessel by which you can soften your material by moist heat, and I would like to place special stress on this manner of softening your material, for in this one feature of manipulation depends largely your success. One of the most convenient little arrangements I have observed for this purpose, is a little covered metal cup in the shape of half an orange with a cover soldered to the flat side of the orange shaped cup. At one side is a hole sufficiently large to admit the point of a syringe which is filled with water and injected into this little cup. This is mounted on a small frame and set over the flame of your alcohol lamp, such as you use for annealing purposes. Having previously prepared your gutta percha by cutting into small squares or any convenient form, it is now placed on the little heater and the flame turned up, and is gradually heated until the water begins to boil, which will be observed by the escape of steam in the little opening at the side of the cup; lower the flame a little to prevent over-heating your filling materials, but sufficiently high to keep it soft enough for easy and rapid working. I usually begin these fillings in properly prepared cavities just as though I were using pellets or gold cylinders packing one upon the other with suitable instruments until the cavity is filled flush with the margins, then with a flat burnisher pretty well heated, moistened with a slight coating of glycerine press the material as perfectly in place as it is possible, and wait a few minutes until the gutta percha is hardened sufficiently to finish.

I find no use for special instruenmts in working this material, only such as are found in the outfit of any dentist. Right and left approximal gold pluggers, flat burnishers, and after you have filled your cavity flush with margins allow it to harden long enough to return to its natural temperature, and then with a sharp chisel and sand paper strips proceed to finish as with a gold filling. While you might find the work a little less tedious by using chloroform to smooth the margins, yet it is considered detrimental to a good gutta percha filling, and leaves it porous or spongy; on the other hand the very best possible results are obtained.

CARBOLIC ACID.

By James F. Austin, D.D.S., St. Louis, Missouri.

Read before the St. Louis Dental Society.

Acidum carbolicum (or carbolic acid) as we all know, plays a very important part in the treatment of some cases which present themselves to us. In discussing this powerful medicine, let us first notice what it is, what it is made from and how it is prepared. It is obtained from coal tar by fractional distillation, and is extracted from that portion of the heavy coal-tar oils which distil over between 200° and 400° F. When pure it appears in colorless crystals, and at 95° F. becomes an oily liquid, with a strong odor and taste. Chemically considered, carbolic acid is an alcohol rather than an acid. It was discovered by Runge in 1834 in the tar of coal. It is best kept for use in a dark amber bottle, tightly corked. Carbolic acid is useful in a great many ways in a dental office, and the desired results are obtained if properly used. In the first place, one cannot be too careful in the use of this powerful remedy. When treating the teeth the rubber dam should always be applied, in order to keep the acid from getting on the patient's face and scarring it. If, however, for any reason the dam is not applied and the acid should get on the face of the patient, immediately take some cotton and saturate it with absolute alcohol and apply it to the burn. In a minute or two the skin, if turned white, will become the natural color, and no bad effects will result. Carbolic acid, being an antiseptic, styptic, escharotic, stimulant and sedative, is a very valuable agent to the dentist. It is used in my practice for obtunding sensitive dentin when preparing a cavity for filling. It will relieve severe toothache nine times out of ten almost instantly. When applied to an exposed pulp it arrests putrefaction and induces healthy action without irritation. I also use carbolic acid as a styptic in cases of superfacial hemorrhage from the gum when setting crowns and bridges—especially in setting Logan crowns, when there is always some hemorrhage if the root is ground as shor as it should be. In case of soft and spongy gums, carbolic acid diluted with alcohol will harden and make the gums less tender. There are two kinds of carbolic acid, the pure and the impure; and in treating putrescent anterior teeth, care should be used to get the chemically pure acid because if the impure (which has a reddish color) is used, a discolored tooth will be the result in a very short time. I find that Mallinckrodt's chemically pure acid is the best.

In the treatment of abscesses with carbolic acid, too much care cannot be exercised. In treating an abscess with a fistula, it is not necessary to run a stream of carbolic acid through it. A small quantity will accomplish just as good results. This I know by experience, for it has been my misfortune to have had a very thrilling episode to occur in using carbolic acid.

A patient presented herself to me for the treatment of an abscessed tooth with a fistula. The tooth had been crowned and the root broken off under the gum margin, and she had lost the crown. She said to me: "Now, Doctor, I want you to save this tooth and put another crown on it, if it can be done." I told her I thought I could do it. Taking the root-filling out of the canal, I took a small broach, and it would seemingly pass through the foramen at the apex of the root. The root being broken off under the gum margin, it was impossible for me to apply the rubber dam, so I took the hypodermic syringe and pumped some warm water through without any trouble. I was still afraid to try carbolic acid, so I took some glycothmoline and pumped it through. The water and gylcothmoline both went through so nicely that I thought I would pump some carbolic acid through and close the canal immediately. But instead of the acid going through as the others did, it shot off in another direction, going up into the cheek and face, which resulted in an abscess of the face. I extracted the root in a couple of days, and found it had been perforated. I could plainly see then how it all happened. In pumping the water and glycothmoline through I was not afraid of its coming back through the root and getting into the mouth; but when I went to pump the acid through, I pushed the needle as far as it would go, so as to have it as tight as I could get it in the root canal, in order to prevent the acid from getting into the mouth. The needle, of course, went through the perforation and into the gums, and the acid did likewise. Gentlemen, I know you will not be surprised when I tell you I lost the patient. I treated her the best I knew how for a week or ten days, and the last time I saw her I thought she was nearly well. Her face was swollen but very little, and the feeling seemed to be coming back into her lip and face. But she never returned to me. She went to one of the so-called ethical dentists of this city, and instead of him asking me what had happened, or what I had injected into the gum, he began to treat her for something he knew absolutely nothing about. He took out two good molars, one good bicuspid and a cuspid, cut away some of the alveolar process, and in time nature healed the wound. The same result would have obtained had he not extracted a tooth, but only kept an opening through which he could wash it out thoroughly with peroxid of hydrogen once every day.

DISCUSSION.

Dr. Walter Bartlett: In the treatment of alveolar abscess, I hardly think it necessary to use a hypodermic syringe. All that is necessary is to get a small amount of carbolic acid in the putrescent canal and, using a piece of soft rubber to get pressure behind, filling the cavity with the rubber and forcing the rubber up into the canal. To guard against the escharotic effects of carbolic acid as it comes through the fistulous opening, first dry off the gum thoroughly, and then paint glycerine over the surface of the gum, so that the glycerine may immediately take up any overflowing acid. I paint not only the gums, but the entire buccal surface. I find carbolic acid one of the most important drugs I have in my cabinet. I am not much of a druggist and don't believe in having a large display of medicines in a dentist's office, and believe we can get along without a small drug store. I use carbolic acid a great deal in preparing root canals for filling, and I have yet to find a root canal with a devitalized base that gives me trouble. After taking out the pulp, if I have hemorrhage I pour it in the canal and it coagulates the blood. I do not even take the precaution to wipe out thoroughly. As long as I have the odor of the acid in the canal, I go on filling. I cannot remember having had any bad results. I never think of treating the canal after the pulp is removed. For abscesses with fistulous openings, for the checking of hemorrhage in fitting bands, and sometimes in cavities where the dentin is sensitive, I take a pledget of cotton, thrust it into the spirit lamp, let it ignite, and while hot, place it in the cavity and leave it there. I find that in a great many cases I can cut sensitive dentin very much better after such treatment.

Dr. Prinz: There is one point of particular interest, and this is the application of alcohol as an antidote to its use. It is one of the best antidotes we have for carbolic acid, and we should, therefore, keep in mind that in using carbolic acid with some other drug which contains alcohol in some form will neutralize its effect, viz.: the combination of carbolic acid and tincture of iodine is valueless as far as the carbolic acid is concerned. Another very useful antidote for internal administration is vinegar. The best medium for liquefying carbolic acid for dental purposes is glycerine. From this solution the various aqueous solutions can be readily prepared up to a six per cent. solution without difficulty. I have found and and advocated for some time past that a combination of carbolic acid with thymol and a small quantity of camphor is an extremely valuable mixture for the treatment of putrescent root canals. Thymol, which is also a phenol, like carbolic acid, but rather insoluble in water, is more lasting in its effects, while the addition of camphor merely modifies the caustic effect of the two other drugs. This mixture should not, however, be confounded with camphophenique, which is only a mixture of carbolic acid, camphor, alcohol and glycerine, and very weak as an antiseptic, although non-irritating.

Dr. Conrad: Carbolic acid is a drug that is used daily, almost hourly, and I consider it, thereofre, as one of the most important in our medicine chest. The essayist said that carbolic acid should have a distinctive odor. Pure carbolic acid has very little odor, and pure carbolic acid must be white. Nor is it necessary to keep it in a dark place nor in a dark bottle. It can be placed in the sunlight, and pure white carbole acid will never discolor. The coloring matter is an impurity and should be removed by the chemist. For that reason I buy only a certain brand, which never discolors. One of the great objections to carbolic acid in the past was that it discolored teeth. That was due to the fact that we all used an acid that was impure. I use the acid to dry out cavities when preparing for a filling. Nothing does this as clean and nicely as carbolic acid. I use it also to ascertain the extent of decay: it acts as a magnifier and brings out all the defects in the teeth. I also use it in diseases of the interdental spaces. Place carbolic acid, full strength, on a pledge of cotton in these spaces and leave it in the position, and nothing will so rapidly induce the healing of the gums. Dr. Prinz said that a five per cent. aqueous solution of carbolic acid is a perfect solution. I do not think he can make a five per cent. or even a three per cent. solution of carbolic acid which will be free from globules of acid floating in the bottle. A two per cent. solution of carbolic acid is the highest solution that can be called a perfect solution. I use carbolic acid in the treatment of devitalized teeth, and also in putrescent canals, but I do not "pump" it into the canal. If it is used carefully in its full strength it will form a coagulum with the gangrenous matter, and the entire mass can be pulled out. After once applied, I never fear any other trouble. Campho-phenique is non-escharotic—not by reason of the addition of glycerine, but because the mixture is united by distillation. A dishonest druggist may sometimes sell you campho-phenique of his own make, and this is escharotic to the full extent, as carbolic acid is. It seems to me strange that anyone would take a hypodermic syringe and ram it into an opening and squirt the contents into it. It's a wonder the patient did not die. The way to treat these false openings is to introduce the carbolic acid into the sanal on cotton and force it through. I use soft gutta-percha for this purpose. After a treatment or two we can force the gutta-percha into the false opening without trouble.

Dr. Prinz. Dr. Conrad said that carbolic acid was soluble only to the extent of two per cent. in water. The United States Pharmacopia states that carbolic acid is soluble to the extent of one part in about fifteen parts of water, which would make approximately a six and a half per cent. solution. Further, as a matter of fact, even the purest carbolic acid is apt to become pinkish, or even brown, under the influence of light. This may be also due to iron, either coming from the containers or from the pliers dipped into it., It does not depreciate its value in any degree.

Dr. Austin: In regard to getting carbolic acid on the face, I do not hope that this shall occur, but I mention it so that if it should happen we will know that alcohol will remove the effects. Of course, I would not advocate the use of a hypodermic syringe for its application. In the case mentioned, I used the syringe because I could not get at the trouble in any other way, as the root was broken off under the gum margin.

American Alkalometry, Vol. III. A Digest of Clinic Teachings for 1900, 1901. Editors: Dr. W. C. Abbott, Dr. W. F. Waugh. The Clinic Publishing Co., Chicago.

This volume presents a condensed outline of two years of practice with the Alkaloids and active principles. Much good matter is presented in the volume which will be of interest to the dentist. Dr. E. L. Clifford has an article on Alveolar Abscess and its causes and treatment, which should be valuable to the medical practitioner.

Manual of Materia Medica and Pharmacy. Specially designed for the use of Practitioners and Medical, Pharmaceutical, Dental, and Veterinary Students. By E. Stanton Muir, Ph.G., V.M.D., Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third edition, Revised and Enlarged. Crown Octavo, 192 pages, Interleaved throughout. Bound in extra cloth, $2.00 net. F. A. Davis Company, publishers, 1914–16 Cherry St., Philadelphia, Pa.

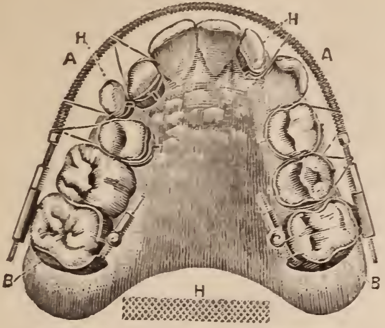
In this work the author gives in a concise and clear manner those points which are of value to the student and practitioner of medicine, without the lengthy detail usually found in text-books, and only those drugs and preparations are considered which are in everyday use. The drugs are arranged in alphabetical order, making it very handy for reference work.

It is divided into three parts, taking up General Considerations, Individual Drugs, and Pharmacy. It is a book which every young dentist should secure and study carefully.

A PAINLESS PATIENT IS A PLEASED PATIENT.

There's not much comfort in a name. Your patient doesn't care whether it's a cavity, an exposed nerve, or an ulcerated tooth. If there's pain, that's enough for the patient. If it's toothache, face-ache, or headache, no matter! It is nerve-ache; there's pain. Believe it! Pain is often all there is to it. Stop the pain and you please the patient. Morphine? If you like! But why create "a habit," check digestion, retard absorption, diminish renal secretion, constipate,, and reduce the flow of bile? Antikamnia & Codeine Tablets stop pain, reduce fever. That's the whole story. No disturbance of stomach, bowels, kidneys, liver or heart. Dentists when operating should administer one Antikamnia & Codeine tablet every hour giving one shortly before beginning the operation. One Antikamnia & Codeine tablet before and one after extracting a tooth, will prevent the severe pain and consequent nervousness. Toothache, facial neuralgia, and earache can be greatly relieved with one Antikamnia & Codeine tablet every hour or two.

Parts "A-B-H-G" are used in this case.
Price, including wrench, $3.00



The Arch in above cut stands further from the teeth than in an actual case. This is done to better show the Arch and Ligatures.

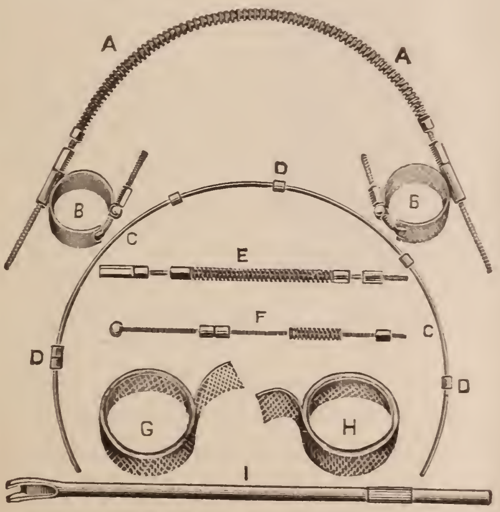
The J. E. Canning

Improved Regulating

AND

Retaining Appliance

This cut shows the combination most used, not only for enlarging the Arch, but for individual tooth movement. The portion of the Arch which surrounds the anterior teeth is fitted with a **Removable Spiral Jacket,** which retains ligatures at any angle from the moving tooth. The Arch can be used with or without this Jacket as the case may require.



Price $5.00

PRICE OF PARTS:

A	Expansion Arch	80c.
B	Adjustable Clamp Bands, each	80c.
C	Retaining Wire	30c.
D	Retaining Tubes (6)	30c.
E	Elastic Pressure Jack Screw	80c.
F	Elastic Tension Traction Screw	80c.
G	Indented Band Material, .004	25c.
H	Indented Band Material, .003	25c.
I	Wrench	15c.

The Improved Jack and Traction Screws, as seen in the complete set, exert a **Constant, Uniform** and **Elastic** pressure against the moving tooth, and when once adjusted, positively need no further attention. The nuts all remain **Stationary,** the spring follows up **Automatically** the moving tooth and also acts as a **Positive Nut Lock.**
All Band Material is **Rough** or **Indented** and will never slip from the cement.
Booklet containing full instructions for attachment comes with all parts.
Appliances adjusted to models.

ASK YOUR DEALER OR WRITE TO

J. E. CANNING, P. O. Box 869, Denver, Colo.

Brewster's High-Fusing Porcelain

When buying a Porcelain Outfit it is well to buy one that has received the endorsement of porcelain experts throughout the country. IT WILL SAVE YOU BOTH MONEY AND DISAPPOINTMENT.

The "Enamel Body" (of which these points are composed) has been repeatedly tested on the Dynamometer and found to register the same resistance to fracture as the best porcelain teeth

BREWSTER'S NEW SHADE GUIDE sent with this outfit of 27 bottles

Price
Outfit Complete
$12.50

Price of
15 Bottle Outfit
is $10.00

For dealing with a large variety of shades, this is the most convenient form of Guide yet devised. It is light, compact, composed of nothing but aluminum and porcelain; may be thrown into the sterilizer and boiled. The shades are all in view at once, and by rotating opposite the teeth in the mouth, the correct shade is readily found. The points may be passed between the teeth. **Should these Shade Guides become damaged in any way, they will be put right free of charge.**

For Sale by Dental Houses Throughout the World.

The Brewster Dental Company,

2544 Princeton Avenue, CHICAGO, U. S. A.

NU

SCIENC

IN 1839

D BY DENTISTS FOR DENTISTS.

T, D.D.S. MADISON, WIS. U.S.A.

LAIN INLAYS.

The MERICAN JOURNAL OF DENTAL SCIENCE will be a spe voted to Porcelain Inlays.

During the st two years this subject has been covered pretty thoroughly by writers and clinicians, and it is now very generally conceded that used conservatively, porcelain inlays are all right.

This being true it was thought that there were undoubtedly many dentists who while still undecided, were thinking seriously of taking up this work, and the plan of this issue is to encourage them to do so, and to aid beginners in becoming proficient porcelain workers.

The issue will contain some fourteen papers, each one being written expressly for this number.

The leading feature will be a series of five papers by leading Chicago porcelain workers, which will cover every part of the making of an inlay.

Dr. F. E. Cheeseman will write on Preparing the Cavity.
Dr. Lee K. Stewart on Making the Matrix.
Dr. G. W. Schwartz on Selecting the Shade.
Dr. J. E. Hancock on Baking the Inlay.
Dr. J. S. Bridges on Setting the Inlay.

From every standpoint it will be the best issue of **The American Journal of Dental Science** that has ever been published—and the magazine was started sixty-five years ago—and you will want a copy. Better subscribe—do it now—twenty-five cents in cash or stamps will pay from now to the end of the year—or one dollar to the end of 1905.

The

(Patented Marc

A PERFECT TOO

Strongest, - Easiest t

Widest Range of Adaptab

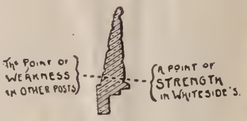
The i

will be a sp

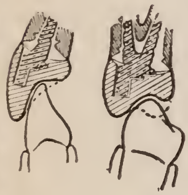
Durin

Every mortise in every WHITESIDE CROWN has grooved undercuts on the inside.

Every dowel-pin, used for attaching WHITESIDE CROWNS, is serrated on all four sides. What possible device can make a stronger attachment?



The Point of Weakness in other posts
A point of strength in Whiteside's.



The placement of the mortise, near the labial face of the WHITESIDE CROWN, makes it possible to use this crown in cases of close occlusion without affecting its strength in the least by grinding.

Booklet describing the various applications and modes of mounting the WHITESIDE CROWN sent FREE on application

---

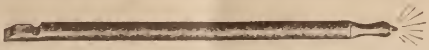
The Whiteside Dental Man'f'g. Co.

(INCORPORATED)

DENTAL SPECIALTIES. YOUNGSTOWN, OHIO

Vol 35

A Diamond Drill with a Point



Made from carefully selected stones, diamond fully exposed, and **actually centred.** We guarantee the **setting** and the accuracy in which they run. Especially adapted for drilling retaining points in porcelain teeth and **Etching Inlays.** Price, **$2.50.**

SAVE MONEY

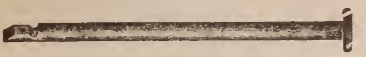
CUT ONE-HALF SIZE

Don't throw away your grinding stones, but true them up with one of our **DIAMOND TURNING TOOLS,** and as a matter of fact they will cut better than they did orginally. Price, **$3.00.**

Our Cavity Shaper, being heavily charged with diamond dust, will be found very valuable in shaping cavities in artificial teeth. Should be run wet. Price, **60 cents** each.

Our Diamond Disk, being heavily charged with diamond dust by our new process, will be found very durable, and will cut on both sides as well as on the edge. These disks are very thin and will be found very valuable in separating teeth. Price, **$1.75** each.

Cavity Shaper



For sale by the leading Dental Depots, or sent, on receipt of price, by the manufacturers,

Diamond Disk

BOSTON DIAMOND TOOL CO.,

Nos. 114-116 Bedford St., Boston, Mass.

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,
Dental Hall, Cor. 33rd and Locust St.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903.
Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

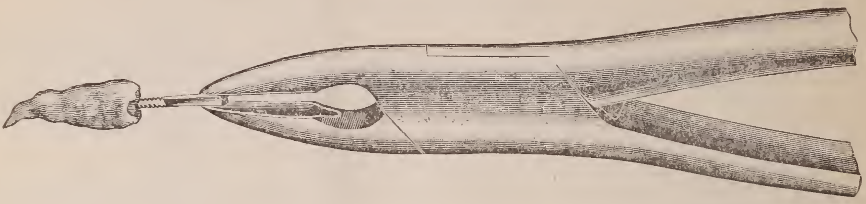
WILBER F. LITCH, M. D., D. D. S., Dean,
1507 Walnut St.

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary.*

Platinoid Crown Pins



Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

TABLE OF CONTENTS.

June, 1904.

The Manipulation of Metallic Shell Inlays—T. C. Trigger...... 95
Jacket Crowns—A. C. McAlpin 97
The Band for Preserving the Teeth—W. Farley................ 98
Repairing Fractured Teeth—C. Edmund Kells, Jr. 98
The Business Man in Dentistry.............................. 99
New Dental Remedies—Alphonso Irwin 100
Experiments with Pressure Anaesthesia—H. E. Sanders........ 104
Pressure Anaesthesia—J. J. E. DeVries...................... 105
A Protest Against Open Faced Crowns—Frederick C. Royce.... 106
Laboratory Hints—D. E. Seehan.............................. 107
An Ideal Amalgam Filling—E. R. Batty....................... 108
Crowning a Badly Decayed Root—F. J. Blight................. 108
An Easy Method of Making a Gold Crown for Anterior Teeth—J. M. King 108
Gold Lower Plates—L. B. Haskell 109
Towels as They Come from the Laundry—P. E. Clarkson...... 109
Taking an Impression Where the Aveolar Ridge is Soft in Places—G. F. Belden 109
How to Apply Root Dressings—W. R. Clark.................... 110
Filling Small Round Cavities with Gold—R. E. Sparks........ 110
Brilliant Record of a Newspaper Man........................ 110
Two Practical Suggestions—Henry Knowles.................... 110
Method of Relieving Sensitive Dentin—I. B. Kenney.......... 111
To Facilitate Placing the Dam—R. E. Sparks................. 111
Women and the Baltimore Fire............................... 111
Preparing Root Canals for Filling—J. W. Daniels............ 111
Root Filling—W. F. Litch 111
Preparation of Cavities for Porcelain—W. A. Capon.......... 112
Sharp Instruments—K. Moyer 112
To Burr off the End of Root—Garrett Newkirk................ 112
Book Review 112

"THE
IDEAL
ADJUVANT"

Dentacura

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties*, than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

Samples and literature free.

Address,

Dentacura
Company,
Newark, N. J., U. S. A.

Keep the mouth as nature intended it should be

ALKALINE

Glyco Thymoline
Kress

Restores Normal Conditions
and maintains perfect
Oral Hygiene

Special Offer. This Bracket Bottle, together with samples for your patients free of all cost, if you mention this journal.

KRESS & OWEN CO.,
MANUFACTURING CHEMISTS
210 Fulton St., New York

The Best Antiseptic for a Dentist's Prescription

LISTERINE

A true prophylactic

Listerine exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

"THE DENTIST'S PATIENT". An interesting little brochure on the care of the teeth, will be forwarded upon request, together with a new pamphlet of 32 quarto pages embodying:

"LISTERINE UNDER THE MICROSCOPE". A tabulated exhibit of the action of Listerine upon inert laboratory compounds.

"COMPARATIVE VALUE OF CERTAIN ANTISEPTICS". An interesting showing of the comparative value and availability of various antiseptics in the treatment of diseases of the oral cavity.

"EXPERIMENTAL RESEARCHES". A report by members of the Association of Analytical Chemists of the Pasteur Institute, Paris, concerning the antiseptic action of Listerine.

LAMBERT PHARMACAL CO.

SAINT LOUIS, U. S. A.

Be assured of genuine Listerine by purchasing an original package.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE
ESTABLISHED IN 1839

THE OLDEST DENTAL MAGAZINE IN THE WORLD
INDEPENDENT--------PUBLISHED BY DENTISTS FOR DENTISTS

VOLUME XXXV
NUMBER 6

THIRD SERIES

JUNE
1904

EDITOR:
WM. GIRD BEECROFT, D. D. S., Madison, Wis.
ASSOCIATE EDITORS:
ALBERT H. KETCHAM, D. D. S., Denver, Colo.
EMORY A. BRYANT, D. D. S., Washington, D. C.
GEO. S MARTIN, D. D. S., L. D. S. ,Toronto Junction, Ontario.

Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.
Address all communications, both business and editorial to the editor.
Entered as Second Class Matter, Madison, Wis.

THE MANIPULATION OF METALLIC SHELL INLAYS.

By T. C. TRIGGER, D. D. S., St. Thomas, Ontario.

(Written for The American Journal of Dental Science.)

The restoration of lost portions of teeth by means of inlays is as old as the art of dentistry itself, but as new adaptations of old processes are constantly appearing, I need make no apology in discussing the subject as it has been presented to me in a practical way.

Gold inlays have been frequently used in very large cavities of the bicuspids and molars, the walls of which were too frail to support ordinary gold fillings, although they are applicable to almost any cavity except very shallow ones which will not permit of sufficient anchorage.

In preparing a cavity for an inlay, there are several requisites:

1. The cavity edges should be thoroughly prepared.

2. The cavity must possess such depth as will admit of good anchorage.

3. The matrix must be easily adapted to the margins of the cavity.

4. Thorough access must be had for its insertion.

5. There must be good retention.

In commencing the operation for inlay work, first cleanse the cavity of all decay, then proceed to trim the edges. In cutting the margins remove any overhanging portions, thereby making a uniform line throughout. Angles must be cut away and converted into curves; and straight lines must not terminate too abruptly in short curvatures. Cut the edges straight and avoid beveling.

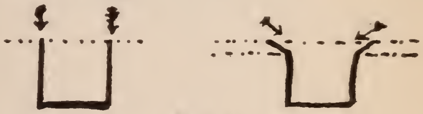


Fig. 1.

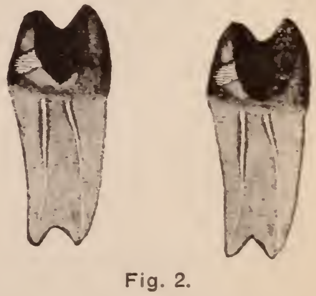


Fig. 2.

After the edges have been thoroughly prepared construct a core for the adaptation of the matrix. Take cement or compound and insert it into the base of the cavity, filling it up nearly to the margin and across the whole floor of the cavity. By doing this it will prevent the unnecessary extension of the matrix to the base of the cavity, and at the same time minimize the quantity of gold used for the contouring.

Fig. 3 shows the core in position complete for the swedging of the matrix. In order to obtain an exact impression of the cavity so prepared, take a small piece of impression compound and force it into position; trim to the edge of the cavity and after it cools sufficiently, gently remove.

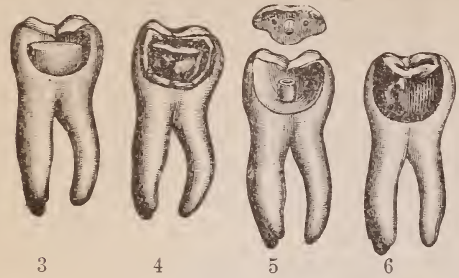


Fig. 3.

Having constructed several forms of trays suitable to convey the compound in position, this method may also be used to withdraw the matrix. Then from this run a cast to obtain a die and counter-die.

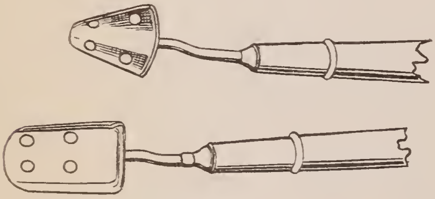


Fig. 4.

Pure gold is used for the matrix, and this can be had from supply houses in sheet form. But as this plate is too thick it should be passed through the mill, until the required thinness is obtained. Old gold fillings melted and rolled will answer. Cut a piece of gold somewhat larger than the die, place it in position, apply the counter-die and swage.

After having done this approximately shape the matrix, when it is ready to be further swaged, in the already prepared cavity. To obtain this end, it is compressed in position by various shaped rubbers, consisting of rings, cones, blocks and points which can be forced when required by blunt instruments, or they can each be attached to the end of points specially constructed to retain them. Dr. Walter M. Bruck in his book on "The Filling of Teeth with Porcelain," gives an illustration of instruments mounted for this purpose.

Many times without making a die, the matrix can be pressed and burnished in the cavity as described. Fig. 4 represents the matrix accurately in position and edges trimmed. It is advisable in large compound cavities in molars, involving the buccal and dorsal surfaces, to make the matrix in two pieces. By doing this it will prevent the buckling of the gold, and thus it is easier to correctly manipulate it in its adaptation to the cavity. When one has satisfied himself that the matrix is accurately adapted, gently remove by teasing it out of the cavity with a fine pointed instrument; then it is taken to the laboratory for further attention..

Take a stick of compound, soften one end, and then press gently into the external surface of the matrix. Care must be observed in doing this, as any undue pressure may change the form of the matrix.

The matrix being imbedded in the compound, drill holes for the insertion of pins. The pins should have well formed heads, and their length must be determined by the depth of the cavity. In vital teeth where the cavities are of limited depth insufficient for any extended attachment, countersunk holes should be used. To obtain this end, drill the number of holes desirable and insert points, made from lead from a lead-pencil. Penetrate them beyond the matrix, and after the filling in process they are removed, leaving holes so that the retentive material employed will insinuate itself in the openings thus left in the inlay.

At this stage, if the operator found it necessary he could vary his manipulation by any feasible method to further increase the retention of the inlay, such as by using both pins and countersunk depressions at the same time, or by using a small tube sufficiently long to obtain good anchorage at the base of the cavity and extending as high as the surface of the core. To retain this in position it would be well to solder at the lower end a small plate of metal, as will best suit the extent of the cavity. This tube attachment is cemented permanently in an upright position so that the wire anchorage, which is attached to the matrix, will accurately pass within the already cemented post which is in the core. The hollow post which is fastened in the tooth should extend slightly beyond the core, so that when in the act of compressing the matrix over it, it will leave a slight indention which will indicate where to penetrate for the anchor pin. It should fit into the hollow post accurately. (Fig. 5.)

Finally insert the matrix and all attachments in a mixture of plaster and sand to hold them in place, and now it is ready for the filling in process. Twenty-two carat gold should be used for soldering all the work throughout, as when completed it will give a decidedly rich appearance.

To cement the inlay in position select the very best and finest cement obtainable. After giving the cement sufficient time to set, the inlay must be trimmed, polished and burnished. Fig. 6.

Francis Mellersh of London, in his paper on the "Sealed Gold Inlay," describes a good method of anchoring the plug by running a deep retaining groove around the whole surface, but, in the one above recited there is an already existing space, for whatever attachment is necessary, and at the same time the greater the cement area—the greater the security of the inlay is assured.

It may be stated here that pure gold has the remarkable characteristic that causes cement to adhere to it in a most tenacious manner.

JACKET CROWNS.*

By Dr. A. C. M'Alpin, Warren, Pa.

The application of the jacket crown is indicated in those cases where the tooth is beyond successful structural restoration by filling, to peg teeth and to teeth that are slightly out of correct position and in those cases where the retention of the life of the teeth is desirable.

It is contended that a more intimate knowledge of and practice with this crown will induce many who now, with the utmost impunity, destroy tooth-life, to take the little extra pains necessary to produce the permanent artistic jacket, and at the same time conserve the normal life energy which is better, no matter what specious arguments are made to the contrary.

The jacket crown is simple in its construction and yet is susceptible to the greatest skill in its application. Briefly stated, the crown consists of a platinum shell fitted over a stub of tooth and upon which is fused porcelain body with a veneer facing.

As these crowns are used mostly on the anterior teeth I will describe a case as applied to an incisor. The tooth is dressed down to a wedge-shaped stub with lingual ground sufficiently to accommodate a 28-gauge plate and a labial space of at least 16-gauge. The cervical ridge is obliterated.

A cylindrical platinum band lap joint 30-gauge as long as the original crown is fitted at the cervix. This is then held in position while on the lingual portion a line is scratched along the cervical margin and at the linguo-distal and mesial angles. The space within these lines is then ground with a coarse dry stone until very thin and the metal burnished down until the lingual aspect is shaped as the surface on the finished crown should appear. This surface is then reinforced by another platinum plate, 30-gauge, which is burnished and shaped to it and soldered with pure gold. The labial portion of the cylinder is then ground in the same way and the metal adapted to the stub by rough-end instruments to prevent burnishing as the fresh-ground surface affords strong adhesion to the porcelain body.

High heat porcelain body is then fused to the ground labial surface, bringing the body to a good flux only. Then a suitable veneer facing ground thin is attached with added body by the second baking. The metal back is finished as metal crowns usually are and the jacket is adjusted as is the ordinary shell crown.

In this era of porcelain dental work the jacket fills a position which is unassailable by any other form of crown. Attempts are made to attach ordinary facings to gold shells but these must necessarily be bulky and bungling when compared to the true jacket crown.

Once one familiarizes himself with the possibilities in the application of the jacket crown, he opens the way to far more satisfactory work than was possible before.

It is worth one's while to begin porcelain work as early as possible for its varied uses tend to bring out the operator's talent, manipulative and artistic ideas, more than in any other phase of dental labor.

---

*Read before the Lake Erie Dental Society, May, 1903.

THE BAND FOR PRESERVING THE TEETH.

By Dr. W. Farley, Paris, France.

Dentistry, insofar as concerns the preservation of teeth by means of "filling" is a failure in the field of the back teeth when the latter are attacked on a line with or below the gum. It is estimated that the life of an amalgam filling will average four years. Also that four-fifths of all fillings are amalgam. Amalgam, then, can not be called a permanent filling. It is not serious enough for the pretenses of a profession. It is more a barber's material when employed in such cases. This will not do. Let us spend less time in discussing ethics and more time in discussing the preservation of ordinary teeth, which, heretofore, have evaded our boasted skill. If I were addressing a room full of students, I would tell them that a tooth which is decayed below the gum margin cannot be preserved with a plastic filling, seldom with gold, *but*, as a rule, always with a band. Any careful dentist can crown such teeth and preserve them, but this may be going too fast on his part; and, besides, is it always necessary to crown such teeth? I emphatically state that it is better to crown them outright than to fill them, but there is, however, a compromise between crowning and filling, and this compromise is effected by means of a band. Although requiring rather mature skill, such as follows from prolonged experience, this band method for preserving the teeth might be sucessfully practiced after the student has undergone a special training in its adjustment. The *modus operandi* is as follows:

Case, an upper first bicuspid. Separate with a diamond disk, and grind around the tooth sparingly. Fit a band the same as for a gold cap. Trim the articulating edges and draw them in flush to conform to the tooth. Contour the part which is to restore the decayed portion by soldering either a piece of pure gold or platinum of a sufficient thickness to allow the band when in place to *knuckle* against the neighboring tooth. To prevent moving, when permanently fixed, solder a platinum pin, taken from a broken porcelain tooth, inside of the band so that is will project into the cavity. Now cut the buccal part of the band away so as to leave a narrow strip of gold at the gum margin. This exposes most of the remaining portion of the natural crown. The palatal side should be left as high as possible. The band is thus ready to be cemented in place (preliminary treatment anticipated). Wash the tooth with alcohol, dry, mix cement, fill in the cavity, also smear it around the tooth, push the band in position, using a foot-plugger and hand mallet to drive it gently home. Particular care must be exercised in forcing the cement all over. A sure way is to push it up with a pellet of cotton.

In some cases a pivot can be fitted in the root. When this may be found useful, the band can be cut away excepting where it restores the contour broken by decay. Instead of finishing with a cement, amalgam, or gold foil surface, the grinding part may restored with a block of porcelain or pure gold. The best way is to finish with gold foil or amalgam. For operators who have full confidence in their ability, such a band as prescribed can be employed as a matrix in building up the vacuum with gold foil. I prefer, when using the band as a matrix only, to begin with tin cylinders introduced on the wedge system of Dr. Schuyler, of Rochester; using three and continuing with gold cylinders and finishing with cohesive foil.—*Items of Interest.*

REPAIRING FRACTURED TEETH.

By D8. C. Edmund Kells, Jr., New Orleans, La.

In "The Principles and Practice of Crowning Teeth," recently published by Dr. H. J. Goslee, I note that his treatment of these cases is so unlike the method devised and used successfully by myself that I am led to offer it for the consideration of those who are interested in the subject.

My early cases happened to be men and the teeth (molars) apparently too good to be cut off and crowned, and in these cases narrow gold bands were fitted to the crowns and cemented in place, thus preserving them for many years in some instances. This method, however, I do not believe was original with me.

But several years ago, a gentleman presented with a bicuspid split in two, and the crown was comparatively good. A gold band around it as just described would have been too conspicuous; a gold crown was not considered, as the making of crowns of that character had been abandoned some years previously, and a porcelain crown was practically a physical impossibility. I was in a quandary.

It then occurred to me to bolt the two pieces together, as any mechanic would do were he confronted with a like proposition in his own line, and I proceeded as follows:

A piece of iridio-platinum wire of suitable length and diameter was threaded with the tap furnished with the Bryant bridge repair set, and upon one end was soldered one of the Bryant cone-shaped nuts.

The two parts having been previously brought together with brass ligature wire, as shown by Dr. Goslee, a hole was drilled through the tooth from the buccal aspect, and of such a size as would allow the threaded wire to just slip through. The openings upon both buccal and lingual surfaces were then countersunk, so as to allow of the nuts being sunk into the tooth.

The bolt was now passed through the tooth, a second nut (also reduced to proper size) was put on the other end and the two parts brought firmly together, the tooth having been previously dried and the bolt and nuts coated with chloro-percha.

When the nuts were polished down to conform to the surface of the teeth, they appeared to be small fillings, and the buccal one, the only one visible, was quite inconspicuous.

This tooth was seen some eighteen months after this work was done and then appeared as solid as before being fractured. Since then a lady presented with the first upper molar in same condition and it was treated in same manner, and at last accounts the bolts had proven a success.

It is therefore evident that the principle employed, which is rational in theory, is equally as sound in practice, and I do not believe the æsthetic results obtained could have been equalled by any other method of procedure.—*Items of Interest.*

THE BUSINESS MAN IN DENTISTRY.

It has been frequently said that professional men are poor business men. It may with equal truth be declared that a business man rarely makes a good professional man.

The metropolis is ever the Mecca towards which avaricious eyes are turned. Fortunes exist and have been made in New York, and the great majority of the discontented throughout the country are eager for an opportunity to walk Broadway or Wall street in search of the golden nuggets with which imagination strews those thoroughfares. What wonder that the provincial dentist, earning a paltry five thousand a year, should desire to establish himself in New York and earn some of those fabulous fees that may so easily be wrung from the millionaires in exchange for amalgam fillings in their molars? None! The only wonder would be that any could succeed in such a venture. The effort has been made by several during the past decade, and it has been of interest to note the methods and progress of at least one or two. It seemed remarkable that any dentist should abandon a practice already established and begin over, merely because rumor states that a limited few—a very limited few—earn a considerable number of thousands annually in this city. It seemed questionable whether, along ethical lines, a practice which would be at all lucrative could be obtained within a period of five years by one who was an utter stranger. This supposition, however, overlooked the instincts of the business man. The story of one such man, the details of whose metropolitan career have come under observation, may be instructive.

It is just about five years since he first became one of the several thousand dentists of this section. It is doubtful whether he has achieved that fortune for which he sought, yet he has received at least a few of the larger fees of which he had dreamed. At first he opened a modest office in a good neighborhood and then went to live at a boarding house. This brought a few acquaintances, and by adroitly leading conversations in the dining room into dental channels, with an occasional recitation of the newer dental achievements being accomplished, the deduction being, of course, that the relator was proficient in these more advanced dental operations, attention was directed toward himself. Well managed, such hints attracted patients, and so soon as the mine was thoroughly worked it was always possible to move to a new boarding house, there to find renewed possibilities. Then there were the haunts of men, the cafes attached to the larger hotels, and the chance to become acquainted with the clerks therein. Dental services rendered for such as these, at reduced rates, rendered obligations, payable by the recommending of guests in the hotels, some of whom, unlike the habitues of the boarding houses, had money.

Now it happened that this particular business man was not lacking in skill. He could fill teeth well, regulate teeth well, do crown and bridgework above the average, and in all ways was sufficiently well equipped to have successfully managed a permanent practice. What he lacked was the real professional instinct. He was a dentist, true, but he was preeminently a business man. His chief aim was the acquirement of money. Strangely enough, New Yorkers, especially those that pay large fees, are far from stupid. They quickly discover whether a dentist is working for them or for himself. So it came to pass that when this business dentist for large fees would fill teeth with porcelain, when gold would have served better for less money, the bill was paid, but the patient sought another dentist when next in need. Then there were those who submitted to extensive bridgework affixed to teeth that were so loose they should have been extracted. The fees were large, but when the abscesses arrived and the bridges, with the roots, were removed, there were other dentists who did the extracting and restoration of the denture. And so with several other unusual or novel operations which patients were persuaded to accept once. They accepted them but once, then looked elsewhere for a dentist. So it has come to pass that it is no uncommon occurrence to have a new patient say: "I am ashamed to acknowledge that I have been in the hands of that 'fakir,' Dr. ———. He fooled me once, but I have had my lesson."

Thus we find that it is possible to be too much of a business man when essaying to practice a profession; and the moral of the tale is, that perhaps it might pay better in the end for a professional man to be a professional man.—*Editorial Items of Interest.*

NEW DENTAL REMEDIES.

By Alphonso Irwin, D. D. S.

Report of Committee on Materia Medica, New Jersey State Society.

In consequence of dentists devoting their energies more to the art than the science of dentistry dental materia medica is still in the evolutionary stage. A thorough and positive knowledge of medicine will transform the dental artisan into a specialist of medicine.

If you believe dentistry is a specialty of medicine, scientific knowledge concerning the action of drugs in diseased conditions of the mouth and teeth is essential.

If you do *not* believe dentistry is a specialty of medicine, you are aware that no dentist can relieve suffering who ignores scientific medication. Whosoever regards it as unimportant is bound to be tripped up sooner or later in his professional career, to his mortification and shame as well as loss of prestige and fees.

About 350 new remedies are discovered annually. Many new remedies announced one year are supplanted by the remedy with a corresponding therapeutic action discovered the following year. There has been a slow but decided revulsion of feeling against the efforts of enthusiasts to advance the claims for therapeutic efficacy of new chemicals. This caution has not prevented experimental investigation in practical medication. On the contrary, the judicious acceptance of that which is good and the rejection of worthless remedies has naturally followed.

We can state as a result of a correspondence with dentists, physicians, editors and college professors living in all parts of the

United States and involving the sending of over 200 letters upon the subject that *no* strictly *new* remedy of wonderful value in dental practice has been discovered during the past year.

There have been produced, however, new uses for drugs of recent introduction, new combinations of old drugs with different therapeutic effect in pathological conditions from that of the individual constituents and new uses discovered for old remedies hitherto unpublished to the profession.

The remedies which are of the greatest interest to the dental profession according to the allopathic classification are: Anæsthetics—general and local, analgesics, antiphologistics, antiseptics, disinfectants, hemostatics, germicides, laxatives, nervines, stimulants, tonics.

Airol (Bismuth Oxy-Iodo-gallate) is an antiseptic which I found popular upon the continent three years ago. It has been commented upon occasionally in the United States during the past year. It is a good substitute for iodoform and possesses the advantages of being non-toxic, odorless and non-irritant—properties which commend it to the dentist wherever iodoform is advantageous. I prefer aristol. In general surgery in Russia airol has been used very successfully in the army in comparison alternately with iodoform on 200 soldiers.

Septoforma is a product of formaldehyde. According to Engels, a three per cent. solution destroys staphylococcus pyogenes aureus in three minutes, the cholera vibrio in one minute, and the typhoid bacillus in ten minutes. Instruments of various metals exposed for three days to thirty per cent. solution of septoforma, and none of them showed the slightest change except those made of aluminum. It seems to have advantages over other similar disinfectants, owing to a much less penetrating odor, absence of local irritation or injury to metal instruments, and that it has a considerable degree of germicidal power. It is recommended for the disinfection of instruments in the strength of five per cent. to ten per cent. solution and as a wash for wounds in a three per cent. solution.

Adrenalin was discovered and introduced by Jokichi Takanimi, who read a paper before you at our last meeting upon my invitation.

Adrenalin has claimed much attention during the past year as an agent for the painless extirpation of the pulp, as an obtundent for sensitive dentine, as a local anæsthetic and hemostatic. (ITEMS OF INTEREST, June, 1903, page 401, by W. Clyde Davis, M. D., D. D. S.)

Positive results are claimed from its application for painless pulp extirpation when the following method is followed: Apply the rubber dam, dry the cavity. If the pulp is covered by softened dentine apply one drop of adrenalin, then one drop of a forty per cent. solution of formaldehyde. If quite a distance from the pulp use slight but continued pressure with a soft rubber plug for a few seconds. Excavate as near to the pulp as possible.

Apply a second crop of adrenalin. Lay in the cavity a few crystals of cocain, apply one drop of the forty per cent. solution of formaldehyde. Apply pressure with the rubber plug first slightly, gradually increasing the pressure until at the end of one minute you can knead the rubber in the cavity with burnishers without inflicting pain. If upon running a nerve broach slowly up to the apex of the root there is pain, repeat the application. Then you can remove the pulp painlessly. Where there is excessive hemorrhage apply adrenalin under pressure for fifteen seconds. Insert non-irritant dressing for twenty-four hours and fill. If indications are favorable, fill immediately. The tendency to elongation and soreness of the root is diminished, the peridental membrane in many cases losing "tactile sense" where adrenalin is used.

The advantages claimed are: Adrenalin is painless; a time saver; tooth discoloration does not occur; after soreness is slight and many times wanting; lastly, your application is a powerful antiseptic.

Dr. D. W. Barker says (in a paper read before the Second District Dental Society of New York, Dec., 1902: "Its discoverer, Dr. W. H. Birchmore, so designates a new disinfectant which combines bromine and chlorine in a new way. It is not a preparation of a chloride of lime. Nascent bromine and chlorine do the work of disinfection. Lime is the connecting chemical. Water will dissolve more than its own weight of bromo-cloron. It is unstable and breaks up upon contact with the faintest trace of a foreign acid. The lime combines with the acid. The bromine and chlorine are freed to destroy any bacteria or animal matter present." Either directly or by the formation of nascent oxygen. *The solution* has *not* the *least effect* upon *living animal membranes.* The chief claim for its use lies in the fact that its action is confined to dead material. It never attacks the teeth, lips and gums. Yet it destroys dead material and bacteria. This new reagent has every advantage of all other reagents and disinfectants without any of their defects.

In treating abscess you open and cleanse root canals with bromo-chloron, flushing out the abscess thoroughly through the fistula with bromo-chloron. Where practicable discharging several syringefuls into it until not a trace of pus remains. No precautions need be taken to protect the mouth.

Dr. Barker claims bromo-chlorin is as powerful a germicide as bichloride of mercury.

Ecthol is an antiseptic used internally as well as externally. The following experience with ecthol is recorded in a case of septic poisoning after extraction: G. S. F., aged eleven, had tooth extracted June 20, after a preliminary hypodermic injection of a four per cent. solution of cocaine. On July 4 she began to complain of tender gums and neuralgic pains of head and face. Upon examination the tissues surrounding the cavity left by tooth were found ulcerated and inflamed and covered by a dirty greyish slough. The surrounding teeth were tender and gums boggy and engorged with blood. Temperature 103° F. Tongue coated. Pulse 120. Loss of appetite, and patient had a severe chill once in twenty-four hours, followed by exhausting sweats. Swabbed cavity and surrounding tissues every three hours with pure ecthol. Gave saline purges and one-drachm doses of ecthol well diluted with water every four hours. Improvement was noticed on third day of treatment. Fever, sweats and rapid pulse were controlled. The unhealthy granulations disappeared and convalescence was established in ten days. Undoubtedly the symptoms in above cases were produced by the presence and absorption of septic material, and each surgical procedures were refused. I would not wish to be understood as taking a stand against surgery in cases were an operation is unavoidable, but I do believe that ecthol in some way is antagonistic to the chemical exudates produced by bacteria and is worthy of an extended trial at the hands of the medical profession.—Edmond J. Melville, M. B. C. M., Bakersfield, Vermont, in *Medical Brief.*

Dr. M. J. Reboul (*Revue médicale*) has used ethyl chlorid as a general anæsthetic in more than five hundred cases. He states that by means of his agent anæsthesia is easily induced, and that patients do not experience any unpleasant sensation. It should be given in small doses, 5 c.c. every five minutes, and the total quantity administered should not be greater than 25 c.c. In children and old people the dose should be half the quantity recommended for the average adult.

The administration by means of a compress is the simplest and most convenient method. It is recommended that air should be excluded. The transmission of an intensely cold sensation to the hands of the operator from the evaporation of the ethyl chlorid in the compress occurs simultaneously with the beginning of the anaesthesia; two or three minutes afterward the anaesthesia is complete. The anaesthesia disappears upon the removal of the compress; but this period is followed by one of analgesia, during which, although at this time the patient is not fully conscious, surgical operations can be performed without his being aware of it.

Dr. Reboul has not observed any unfavorable symptoms consequent upon ethyl chlorid.

An ethyllic compound called narcotile promises to become a formidable competitor of nitrous oxide gas as an asaesthetic for the painless extraction of teeth and other dental operations where general anaesthesia is desirable. The value of chloride of ethyl as a local anaesthetic has been long known and the bromide of ethyl has been used as an anaesthetic, but the introduction of an ethyllic compound for producing general anaesthesia has been of more recent date. It appeared in England in April, 1901, and later in the United States.

The advantages claimed for narcotile are its "unalterable composition, rapidity of action, harmless and easy employment." Among the thousands of cases where narcotile has been administered, its application has never been attended with accident. In producing general anaesthesia with narcotile, two hours after the last meal should elapse, the patient must be free from any constricting clothing around the waist or neck, and placed in a position as near horizontal as possible. All artificial teeth must be removed, and if for extraction the gag must be applied before narcosis.

Sixty-seven c.c. (mililitre = 16.2318 m., about 113 m.) is sufficient to cause anaesthesia in from half to one minute and lasting from five to ten minutes. By repeating or prolonging thea dministration of narcotile anaesthesia may be prolonged without inconvenience from ten to fifty minutes.

The general effects of narcosis produced by narcotile nearly resembles those of sulphuric ether. Much more speedy than chloroform or nitrous oxide gas, narcotile acts upon the sensory nerves and spinal centers, then upon the motor centers and motor nerves, and finally upon the medula oblongata. Complete anaesthesia is so rapid that the different stages of narcosis can hardly be noticed. There are very seldom signs of excitement at the first stage of its application. The condition of complete anaesthesia may be recognized by the moderation of the pulse and the respiration. The patient lies quietly as if in a deep sleep; the movements of respiration are regular and rather less frequent than in normal sleep. The patient inspires deeply, and sometimes is snoring. The pulse becomes full and soft and scarcely accelerated, sometimes even slower than at the commencement of inhalation. The muscular system is not entirely relaxed except in children. The best way to ascertain the fact that anaesthesia is complete is to raise the arm of the patient and then allow it to drop by his side. If the stage of complete anaesthesia has been reached, the limb will fall like an inert mass. If any degree of rigidity persist, a fact which may be readily ascertained by flexing the arm at the elbow joint, the patient is not fully under anaesthesia.

Sensibility may also be tested by pinching the skin sharply between the nails of the finger and thumb. The indications thus obtained are more reliable than the results of touching the conjunctiva of the eye.

Consciousness returns very quickly; the patient does not experience any period of stupor or coma, which usually follows the application of other anaesthetics.

Narcotile, acting chiefly on the cerebrospinal centers and on the motor nerves, does not affect the heart, but we should advise the surgeon to make inquiries as regard undue indulgence in alcohol, or if the patient is undergoing treatment for cardiac disease, these cases being a contra indication for the use of "narcotile."

The digestive properties of papoid have been the subject of investigation by chemists, and its power and value have been proved beyond a doubt.

An aqueous solution of papoid soon spoils, but a glycerine solution will not readily ferment. A glycerine solution is particularly employed for dissolving false membrane in the throat in diphtheria and in cleansing of foul wounds in surgical practice. Any of the usual chemical antiseptic agents may be prescribed with papoid. Where it is desired to increase its activity, the addition of five grains of sodium bicarbonate to each 100 minims of the solution is a decided advantage. It acts at any temperature, but when possible, as in surgical cases and certain forms of skin disease, it is advised that the part to which it is applied should be kept warm with hot cloths or some other means, as a moderately elevated temperature favors its action.

It is claimed that papoid, prepared by Johnson & Johnson, is a preparation superior to papin, which Dr. Harlan reported upon so favorably in the dental journals.

Recommended for Trial.

It is suggested in addition to those remedies already mentioned a careful trial and a tabulated record of the following drugs be made and reported upon at a future time:

Antiseptol—An antiseptic for internal and external administration.

Acetozone—A powerful germicide.

Alka-thymal—Antiseptic and detergent. Used in pyorrhoea and as a mouth wash.

Aromatic Tincture of Red Gum—Soluble in water or alcohol. An astringent mouth wash, styptic for hemorrhage after dental operations.

Alka-thyptol—A preparation of thymol and eucalyptus, useful in the treatment of oral catarrah, chronic nasal catarrh and diseased mucous surfaces.

Enzymol—A deodorizer, a solvent of septic naterials, potent, painless, harmless; has a remarkable healing curative effect. Dilute with an equal volume of water. Use for abscess, necrosed bone, gangrenous pulp, pyorrhea alveolaris, disease of antrum. Highly recommended by Drs. T. R. Chambers, R. T. Morris and J. W. Glitsman in treating mucous surfaces of eye, ear, nose, throat and mouth.

(Lithium Bitartrate Salicylic Acid and Sodium Bitartrate) and

Lithos—Uric acid solvents for internal administration in the systemic treatment of pyorrhœa alveolaris (caused by Lithunia).

Nargol — A new silver compound. Solutions injected for disease of the antrum and along pus tracts. Its use is suggested for treatment of putrescent pulps and sensitive dentine in the molars.

Phenoline—An antiseptic disinfectant and germicide. Used as a mouth wash and in the treatment of catarrh; for wounds, scalds and burns. Dilute with two to ten parts of water.

Olecco—A pleasant laxative antacid, used in constipation; the anti-pholgestic treatment required in conjunction with local treatment of disease of the mouth and teeth. Recommended highly by Dr. L. S. McMurtie, Louisville, Ky., and Dr. Veschner, Chicago, Ill.

Pyrozone—Prepared according to the standard of the U. S. Pharmacopœia. Not only maintains its reputation but its use is on the increase.

Ut-A-Sol—For neuralgia and rheumatic pains; dose 10 to 20 grains; total dosage limit per 24 hours one to three ounces. Is not a depressant but tonic. It is an internal antiseptic. Sterilizes urine.

"*Solidified Phenol*"—A convenient and efficient application for pulpitis.

"*White Enameled Glycerine Proof Cases for Anhydrous 95 per cent Glycerine Suppositories*"—A convenient and efficient laxative.

Glyco-Thymoline Applicator (Kress & Owen) designed by E. C. Rice, of Philadelphia, consisting of a rubber ball and tube conveniently shaped to inject fluids into pus pockets, abcesses, fistulas, which intelligent patients can take home and use.

The Oakland Chemical Co. also have a small syringe designed for injecting remedies into contact with diseased surfaces. They are exceedingly useful and the subject of new remedies would not be complete without mention of the new applicators for using the drugs in dental medication.

Text Books on Dental Materia Medica. Lea Bros. & Co. have issued an edition of Long's Dental Materia Medica.

P. Blakiston Son & Co. have published a new revised and enlarged edition of "Gorgas' Dental Medicine" (7th ed. by F. J. S. Gorgas, M. D., D. D. S., Baltimore, Univ. of Med.).

In conclusion, remedies recently introduced possessing more or less merit, have been necessarily omited because it would require volumes to enumerate them and their action in detail.—*Items of Interest.*

EXPERIMENTS WITH PRESSURE ANAESTHESIA.

By Dr. H. E. SANDERS, Erin, Tenn.

The following is the history of a few cases in which I have used the pressure method of pulp extirpation as set forth in the October number, 1903, of ITEMS OF INTEREST by Dr. Clyde Davis. I commenced using the other pressure method several years ago and have used it to some extent, and with varying success up to the time I adopted the adrenalin and cocaine method which was about one month ago.

Lady about forty years old. Superior left lateral, disto-approximal cavity. Pulp not entirely exposed. Applied adrenalin and cocaine with pressure by unvulcanized rubber for about a minute. Cut in and applied again for about same time and removed pulp painlessly with not a drop of blood. Another case a day or so afterward was attended with so much pain that I desisted and applied arsenic, but I am now convinced that the trouble was in my not knowing how long to maintain the pressure. I only held it one minute whereas I believe, if I had held it three minutes, as the editoral in the November issue of Items of Interest directs, it would have worked as well as my other cases.

Girl about sixteen years old. Superior right central very large root. Pulp exposed. Applied cocaine and adrenalin for about one minute with pressure as before, and removed with very little pain and and some hemorrhage, which I stopped by means of cotton saturated in adrenalin and inserted in root. Had I applied pressure long enough I am convinced that there would have been absolutely no pain and no bleeding to amount to anything.

Lady about twenty-five years old. Superior right central. Applied cocaine and adrenalin for three minutes to cavity (pulp was not exposed). Cut down and removed painlessly and almost bloodlessly.

Same person as above. Superior left central. Pulp not quite exposed. Applied for three minutes; cut down and applied for three minutes more and remove painlessly and almost bloodlessly.

Same person as above. Pulp not quite exposed in superior right lateral. Applied for three minutes; cut down and applied for three minutes more; cut down again and applied a third time for three minutes, when I removed absolutely without any pain and very little bleeding.

Man about thirty-five, fireman on passenger train, came to my office at night suffering from the most violent toothache I have ever seen, in a lower right third molar. He had put something in to stop the pain and in pressing it in had pressed part of the thin bottom of the cavity into the pulp. I removed this softened dentine, applied cocaine and adrenalin with pressure for three minutes and removed pulp without pain.

Negro boy about twenty years old; superior right first molar; applied for three minutes to cavity. Pulp was not quite exposed. Removed it without pain and no bleeding.

In all these cases, except VI. and VII. the roots were filled immediately and the teeth filled with gold. The others were left because of a lack of time to finish the operation. In none of them was there any soreness to amount to anything. What little was present in one case was relieved by an application of T. Aconite and T. Iodine equal parts. In case VI., I know of nothing that would have given this man immediate relief except possibly extraction, or perhaps morphine might have relieved him in the course of an hour. He was suffering intensely, muscles were twitching and great beads of perspiration rolling off his face; yet in four minutes from the time he entered my office he was perfectly easy.

I shall always be grateful to the gentleman who has given us this method.

PRESSURE ANAESTHESIA.

By Dr. J. J. E. De Vries, Amsterdam, Holland.

I have used pressure anæsthesia in connection with cocaine for over four years, and am really very much pleased with the results. The hemorrhage after extirpation was the only unpleasant feature, often requiring much time to be controlled. Since November, 1902, I have used cocaine and adrenalin, changing several times the formula. For about six months I have relied on the following solution, which, if kept in a dark, well closed glass stoppered bottle, keeps all right for months:

Sol. Adrenalin ....
1-1000—5. Parke Davis
Hydro Chl. Cocaine.............
1.

My *modus operandi* is as follows: Syringe cavity several times with a weak Lysol solution (1-1000). Put on rubber dam directly. Wash out cavity with Lysol, dry with cotton and place in the cavity a small piece of cotton with adrenalin-cocaine, leaving it there for from three to five minutes. Excavating with no pain at all is possible, and where not exposed, expose the pulp quickly with the aid of a sharp fissure bur. Wash out cavity with absolute alcohol (less irritant than formalin, etc.). Apply again cocaine-adrenalin; put a piece of unvulcanized rubber and under slowly increasing pressure impregnate the whole pulp. Open pulp chamber widely and extirpate immediately. Wash out canals with thirty per cent. $H^2 O^2$, followed by absolute alcohol and dry with hot air. Except in very few cases I fill canals immediately as follows:

Wash out canals with cotton twisted around a Miller's needle, dipped first in a saturate solution of thymol in oil of cinnamon; fill with G.P. points dipped in the same solution. The oil of cinnamon being evaporated after some time, leaves the thymol in small crystals along the wall of the root canal and with the G.P. points form in this way a very long lasting antiseptic. Where necessary (mesial root lower molar, etc.) I enlarge the canals with the aid of Beutebrock's instrument, preferring the hand burs. I have followed this way of treatment daily and thus far have had no bad after effects. At the December meeting of the National Dental Association I gave a lecture on direct pulp extirpation with cocaine-adrenalin, followed by a demonstration. Many dentists are now practicing this mode of extirpation, all being very much pleased with the success.

A PROTEST AGAINST OPEN FACED CROWNS.

By Frederick C. Royce, D. D. S.

Read before the Second District Dental Society, November, 1903.

In the construction of a bridge where one of the anterior teeth is to be used as a support, we are confronted with the question, "What kind of a crown shall be used?" There are two important points to be considered, namely, usefulness and appearance; as we not only want a crown that looks well in the mouth but one that is also serviceable. We all dislike very much to see gold crowns on any of the anterior teeth, as they are anything but æsthetic in appearance, and, of course, would not use one, at least not for our lady patients. In the mouth of a man who has a moustache the all gold crown might be used and not be very noticeable.

There are many who object to the removal of the pulp to make use of a Richmond crown for an abutment and not being willing to use an all gold crown resort to the open face crown. Many dentists who are skilful mechanics make use of this style of crown, still I have no doubt that we all have seen cases where the use of them has resulted in failures. It is claimed by those who use this method of crowning that if a perfect adaptation of the gold to the shape of the tooth is obtained and the edges are thoroughly burnished down that the cement will not wash out. Theories may be advanced and new methods introduced for which much is claimed, but clinical experience is the only true test. From my experience I am firmly convinced that it is not possible to make an open faced crown, the cement of which will not be acted upon in the course of time by the fluids of the mouth.

In the preparation of a tooth to receive a crown it must be ground sufficiently to allow the band to slip over the tooth in order to fit at the neck. This will of necessity give a large surface that will be much more rapidly acted upon by decay.

After the cement is gone, sooner or later decay will begin under the gold, and it works so insidiously that suddenly the patient awakens to the fact that there is trouble with the tooth thus crowned. Upon examination it will be found that decay has begun and it is necessary to remove the crown. Perhaps at the end of the bridge is a full gold crown which it is necessary to slit open and pry off before the piece can be removed, and then what a sorry sight is presented. The tooth under the full gold crown is probably in as good condition as when crowned, while decay has taken place under the open faced crown until possibly the pulp is nearly or quite exposed. Not only that, but as a rule the dentine in such conditions is so very sensitive that it is almost impossible to work on it, even after having used obtundents. Now what shall be done with such a case as this? Perhaps it is decided to devitalize the pulp and use a Richmond crown, but upon a closer examination it is found that decay has extended above the gum margin either on the labial or lingual surface.

This may seem like an exaggerated story, but it is simply a statement of what has taken place in many months where this method of crowning has been used. Had the pulp been devitalized in the first place the bridge might have been anchored with a Richmond crown and the root prepared in just the shape the operator desired and the result have been a permanent piece of work. With the surface of decay extending up under the gum margin it is far more difficult to prepare the root and adjust the band to make an æsthetic as well as a lasting piece of work.

I have given open faced crowns a fair test, making them over metal dies, using 22k. gold, annealing well and burnishing the edges as close to the tooth as possible. The result with me was always the same; as a permanent piece of work it was a failure and in every case the bridge had to be removed and an anchorage made in some other way.

I have been called upon to remove bridges where the trouble was solely with open faced crowns, the anchorage at the other end being a full gold crown always found in perfect condition.

The workmanship in all the cases as far as I could see was good and satisfied me that they had come from the hands of good operators.

Now why are all these failures? It can not be that it is the fault of the operators in all these cases, as their other styles of crowns were doing splendid service and the failure was always with the open faced crowns. There is only one conclusion that can be drawn in the matter and that is, the method is at fault.

LABORATORY HINTS.

By D. E. Sheehan, D. D. S., Hamilton, Ohio.

An Aid in Carrying Pumice.—When using felt cones or wheels in polishing rubber plates, gold crowns, etc., hold a piece of soap against the wet cone before applying the pumice. The soap on the cone prevents too much heat and will also carry the pumice.

To Keep a Supply of Soft Wax.—Punch a hole the size of your Bunsen burner in the bottom of a seamless salve-box. Push this down to a point just above the air-holes in the burner and solder in place. Fill box with scrap wax, and when the burner is in use you will always have an abundance of soft wax. With this convenience you will save the time usually consumed in picking up and balancing a piece of hard wax on the end of your spatula, in heating it.

To Prevent Bruising Plate When Swaging.—In swaging metal plates, that you will not bruise your plate, get a rubber tip usually used on crutches. Put this on the large end of your horn mallet and proceed.

A Soldering Hint.—When you solder your bridge, first of all have the investment hot. When using the blowpipe do not blow a strong blast, but blow gently enough to have a yellow streak in the flame from the pipe to the piece to be soldered. The yellow streak is essential. You can drag the soldier with a piece of strengthening bar stuck in the end of a pine stick.

To Burnish Backing Over the Edges of Teeth.—In backing up facings for bridges and crowns with heavy plate, especially cuspids, it is sometimes hard to burnish the backing over the incisive edge. To facilitate matters split the backing in several places parallel with the long axis of the tooth to the line where the plate is to bend. It will then burnish over easily. Go over this surface once with a file and it will hug the tooth perfectly.

Rapid Repair.—For rapidly repairing a plate when one or two teeth are broken out, dovetail the plate back of the pins set in the tooth and pack in a quick-setting amalgam. It will hold as well as a rubber patch.

Care of Seamless Crown Outfit.—Before putting away your seamless crown outfit after using, paint the holes in the draw-plate with oil. This prevents rusting of the plate, and the oil prevents stretching and consequent thinning of the gold in your crowns. Never drive gold through dry holes.—*Summary.*

AN IDEAL AMALGAM FILLING.

By E. R. Batty, Alma, Neb.

Adjust the rubber dam to the tooth which is to be operated upon. Open into the cavity and remove all decay, care being taken not to cut away any more enamel than is necessary to allow proper access and to prevent the recurrence of decay. Prepare the margins in a symmetrical form and polish as smooth as possible. Sterilize the cavity with a good germicide and dry well with hot air. Cleanse with chloroform to remove any oily or foreign substance and dry again with hot air. The cavity is now ready to be filled. Line with cement to the inside margin of the enamel and place a coating of amalgam over it before the cement has set. When the cement has become sufficiently hard proceed with the completion of the filling, using the amalgam with as little mercury as possible and malleting well. By this method we have a perfectly sealed cavity where decay will not recur. The dentine is protected from thermal changes and the walls will not turn dark. We also have better retention and a stronger tooth.—*Review.*

CROWNING A BADLY DECAYED ROOT.

By F. J. Blight, Liverpool, Eng.

Some time ago I was asked by a patient if I would crown an upper central incisor, which had been filled some years back with a very large gold filling, and which had unfortunately given way. On examination I found that the decay had spread largely into the root, involving considerably the pulp canal; after carefully excavating all decay and *debris*, nothing remained but little more than a shell of the original root. My patient still desired me to crown because of his dislike to a denture.

Well, gentlemen, to be brief: (1) I took a piece of platinum foil, of about the thickness of No. 1, and rolled it into the shape of a cone. This I placed into the root and packed the foil gently against the sides with cotton wool (amadou may be used) and so obtained an exact shape or impression of the root. (2) I removed the cotton wool and filled in the hollow cone with wax (whilst still in the root). (3) I then invested this in sand and plaster and filled in with scrap gold, and when the cone was almost filled I placed a small platinum pin in for manipulation. (4) The now solid cone was placed into the root, and a piece of platinum foil No. 2 was carefully burnished over the edges of the root for a base plate and soldered, and preceeded as with an ordinary pivot.

The building up of a post for a root (as above described) is to my mind an improvement over the older methods, viz., either undercutting and packing in with amalgam, or narrowing the root canal by cementing in a tube taken from a broken tube tooth.

If pin wire be introduced into the solid cone, a tube tooth may very easily be let down; or if pure gold be used throughout in solderng, a tooth may be fused with either Ash's or Jenkin's body.—*Jour. B. D. A.*

AN EASY METHOD OF MAKING A GOLD CROWN FOR ANTERIOR TEETH.

By J. M. King, D. D. S., Brookside, Ala.

The most economical, quickest and best way to make anterior gold crowns is to grind the square end of the dentist's anvil in a shape for contouring and then give a high polish. Obtain a small hammer best suited for your use, take measurement of root and make band of 30-gauge gold, fit on model and contour next to gum with hammer and anvil and crescent contour flush. Trim band so it will go under free margin of gum, contour band, trim plaster tooth and trim band lingually so as to get an alignment. Then trim bite from band, and solder a piece of gold over this which makes the work complete. A little pains will enable any one to make a crown which has extra good shape and the thickness of the gold will allow for a good finish. Use tripoli for polishing and then a chamois polishing wheel with rouge thoroughly incorporated in it. This rouge gives it a beautiful finish. A little practice will train the operator to make the so-called hand-made crowns which look well—

though I am not a strong advocate of anterior gold crowns. Every practitioner has some to make sometime in his life and to be able to do it at home is of great advantage.—*Summary*.

GOLD LOWER PLATES.

By Dr. L. B. Haskell, Chicago.

Take an impression always in plaster. Upon removing the model, build up with flaring sides so it will drop readily from the mould. Make Babbitt Metal die. For patterns use tea-chest-lead, Japanese is preferable. Form patterns so as to swage in two pieces, each one extending six and one-half inches beyond the teeth. The plate can be partially formed by lower bending pliers. After swaging each piece separately, swage the two together. Trim the *upper* one the width desired always extending well up *on the necks of the teeth*, as the plate will set steadier and giving more width for strength. Leave the lower section untrimmed so as to have a margin upon which to lay the solder. Borax well the two surfaces, and clamp together with two clamps. Lay the solder all along the margin which was left untrimmed and apply the heat from the upper margin so as to draw the solder between. This will give a nicely fitting plate, reinforced by doubling or lapping the two sections.

It must always be borne in mind that a lower plate, full or partial, must not be so deep on the *lingual* side as to be lifted by the muscles and glands, which often rise above the top of the ridge. When preparing to make a plate always have the patient raise the tongue to the palate and act accordingly.—*Summary*.

TOWELS AS THEY COME FROM THE LAUNDRY.

By P. E. Clarkson.

First, we decide to try if the ordinary linen, as we get it from the laundry, is really aseptic. Accordingly, with a pair of scissors and a pair of pliers, both absolutely sterile, we snipped a piece out of the inner folds of a towel, and lodged it with every precaution on top of some sterile glucose agar, pressing the particle gently against the surface, and replaced the sterile cotton plug in the test tube, everything having been previously sterilized except the bit of linen. Then, with the same care, we cut off a bit of the fringe of the same towel (this towel had been lying in the locker a week or more, but never used). Of this we made a stab in some agar medium, pressing it with a sterile needle down to the bottom of the test tube, so that it would be away from oxygen. The two tubes were placed in the incubator and watched daily, but even at the end of the seventh day there was no sign of any growth whatever. This, we are pleased to think, goes to prove that we can depend upon our laundry really being sterile, as germs of any kind had every chance to develop if they were present.—*Dominion*.

TAKING AN IMPRESSION WHERE THE AVEOLAR RIDGE IS SOFT IN PLACES.

By G. F. Belden, Toronto, Can.

Just one other thing this evening, and that is taking an impression where the aveolar ridge is soft in places. Select cup as before, take full impression in compound, using the same care in pressing up at the back of the cup: when hard remove, chill and dry: opposite soft part or parts cut wax completely out, then mix some plaster as before directed, placing in enough to fill up portion cut away, and a little spread thinly over the rest of the impression. Insert quickly in the mouth, press firmly to place and opposite soft parts press gently with the finger, also having patient pull down cheeks and lips as before directed—by doing this the impression can be pushed firmly into position without shoving or displacing the soft parts, as the pressure comes on the hard parts of the mouth.

If properly manipulated, you will find when you remove it you have a beautiful impression of the jaw with very little trouble, that would otherwise be a very difficult task in the old way.—*Dominion*.

HOW TO APPLY ROOT DRESSINGS.

By W. R. Clark.

Dr. Lewis, of Austin, Minn., was in my office the other day and noticed me trying to pick the cotton off the end of a barbed broach by which I had been carrying some oil of cloves into a root. He said: "Let me show you a thing that Dr. Searl of Owatonna put me on to." He took a smooth broach, held it a moment in the flame, touched it to a piece of beeswax, and wrapped the cotton around it. The idea is a good one. You can carry the cotton to the end of the root, give a slight rotation of the broach, and leave it there, or, holding on to the shred, you can remove it with the broach, and remove it instantly. Try it.—*Cosmos.*

FILLING SMALL ROUND CAVITIES WITH GOLD.

By R. E. Sparks, Kingston, Can.

Take a third sheet of No. 5 non-cohesive gold foil, folded into a very narrow ribbon, and insert one end into the cavity. With a hand-pressure plugger catch the ribbon far enough from the end just introduced to form a fold long enough to reach to the bottom of the cavity, while the loop of the fold extends slightly beyond the orifice. Continue this process until the cavity is a little more than full. Then condense and finish as in any ordinary case. If the cavity be extraordinarily deep for its size, fill to, say, one-half its depth and condense. Use this as the floor of the cavity, and proceed as above described. Non-cohesive gold spreads upon pressure, and accommodates itself to the size and shape of the cavity without balling, as is the case with cohesive. Besides, such a cavity may be filled in much less time with the former than with the latter.—*Dominion.*

BRILLIANT RECORD OF A NEWSPAPER MAN.

The success which has attended William E. Curtis, the famous correspondent of *The Chicago Record-Herald,* is rarely attained by newspaper writers. Beginning his career in Chicago in 1872 as reporter, he rapidly rose to the position of managing editor. He resigned that position on receiving a government appointment as secretary of the South American commission. Mr. Curtis traveled extensively in Central and South America while in this position, producing several popular volumes as the result of his literary labors. Afterward co-operating with Secretary of State James G. Blaine, Mr. Curtis organized the work of the bureau of American republics, with the result that he was placed in charge of that organization, and at the World's Columbian Exposition he distinguished himself by his labors as the executive head of the Latin-American department. As correspondent of *The Chicago Record Herald,* Mr. Curtis' travels have carried him into every section of the United States as well as into all quarters of the globe. His China and Japan letters were published in book form; likewise his letters from England, Germany and France, as well as those written during his travels in Mexico and South America.

No newspaper correspondent possesses the facility shown by Mr. Curtis in writing on any of the diversified subjects embraced in his correspondence and making it luminous. Nor is any correspondent followed so closely year after year by the thousands of readers of *The Chicago Record-Herald.* On his recent trip to the Holy Land Mr. Curtis' letters have been read more closely than ever, and his descriptions of that interesting section of the globe as it appears today have been quoted everywhere.

A daily letter from Mr. Curtis appears in *The Chicago Record-Herald.*

TWO PRACTICAL SUGGESTIONS.

By Dr. Henry Knowles, Washington, D. C.

To Make a Dentimeter.—Take the bone handle of an old mouth-mirror; break off the screw, if it is not already broken; with file or stone, flatten the end for a quarter of an inch or more; drill two small parallel holes.

To Make New Post for Richmond Crown.—When post has broken, with wheel burs and small stones, dress down remainder of post so that it is flush with cap; solder new post to a disk of platinum that approximates size of band; cut platinum so that it fits snugly inside of band; the base of post must be ground flush with cap; use minimum amount of solder in uniting new cap to band. The repaired crown simply has two caps.—*Summary.*

METHOD OF RELIEVING SENSITIVE DENTIN.

By I. B. Kenney, D. D. S., Park Rapids. Minn.

In the case of cervical cavities which are always very sensitive, I use a local anesthetic hypodermically exactly as for extracting. Put on dam and dry thoroughly, touch with carbolic acid followed by warm air. Use sharp burs and run engine fast. The adjusting of clamp cannot be felt no matter how far below the gum the cavity extends.

It works splendidly with me and is worth trying on your next case..—*Summary.*

TO FACILITATE PLACING THE DAM.

By R. E. Sparks, Kingston, Can.

To facilitate the passage of rubber dam between teeth, when the latter are close together: When ready to adjust, smear a little glycerine over the holes, on the side of dam to pass over the teeth. This answers instead of soap, recommended for the purpose, and is much less objectionable to the taste if it should come in contact with the patient's tongue.—*Dominion.*

WOMEN AND THE BALTIMORE FIRE.

A generous and graceful tribute to the calmness of women in danger is that paid by Mr. Lynn Roby Meekins, editor of the Baltimore Herald, in his article in the June *Delineator.* He tells not only of women who worked in the thick of the destruction with and for their employers' husbands and fathers, and of the brave and cheerful way in which, when all was lost, they set to work at humble occupations to support themselves, but of their ability to rise quite above the consideration of material things in the recognition of essentials. "One young husband," he says, "made his way home and, pale and trembling, approached his wife. 'I am ruined,' he exclaimed. 'My dear,' she replied, smiling through her anxiety, 'you are not hurt a bit.' That was the woman's view of the situation. It was mainly personal."

PREPARING ROOT CANALS FOR FILLING.

By J. W. Daniels, Monon, Ind.

The root canals are cleansed and dried in the usual way. Before filling with chloro-percha and gutta-percha points, tinc. aconite is pumped into the canals by means of a broach wrapped with cotton, after which the surplus aconite is removed from the pulp chamber with a pellet of cotton. The canals can now be filled with chloro-percha and gutta-percha cones in the ordinary way and no soreness will result. The action of the tinc. aconite on the tissue in the apical region prevents inflammation. I have not had an instance of patients complaining of soreness of the tooth since I adopted this method.—*Review.*

ROOT FILLING.

By W. F. Litch, Philadelphia.

My favorite root filling is gutta-percha, and where I do fill roots immediately after the removal of the pulp, as is sometimes necessary, I find it an excellent plan to carry on a probe a small portion of powdered iodoform as near as possible to the root apex and then pack the gutta-percha on that. Iodoform is, clinically, antiseptic as well as anæsthetic, and hence is an excellent dressing for the stump of a removed pulp. The advantage of applying the iodoform before introducing the gutta-percha, rather than with it, is that if mixed with gutta-percha and heated the iodoform is likely to be decomposed and some of its good qualities impaired.—*Brief.*

PREPARATION OF CAVITIES FOR PORCELAIN.

By W. A. Capon, Philadelphia.

The preparation of a cavity for porcelain, while similar to that for gold, has one point of difference, which, if not observed, will much lessen the durability of a porcelain filling, and that is the edge. Cut to have the walls perpendicular; avoid saucer-shaped cavities by squaring the bottom and thereby assisting retention. The edges of every cavity or section of tooth against which porcelain is to be placed must have square edges, or, to use the correct term, have the cavity wall as near a right angle to the surface as possible. Of course, in some cases, notably bicuspids and molars, the angle will probably have a tendency to be acute or obtuse, but in all cases have the edges sharp.—*Extract Brief.*

SHARP INSTRUMENTS.

By K. Moyer, Little Falls, Minn.

To always have sharp instruments an excellent rule to adopt is to never return an instrument to the case until it has been resharpened, and if followed a very few strokes on the stone brings the edge to almost a razor keenness, which makes its use a pleasure. This work can be done with an Arkansas stone on the lathe-head, but is not liable to be done as well, or rather is overdone by using up more of the instrument than is necessary at each resharpening.—*Extract Cosmos.*

TO BUR OFF THE END OF ROOT.

By Garrett Newkirk, Los Angeles.

I seldom do more than make a small opening through which I can introduce a bur of suitable form for cutting off or smoothing the end of the root, or for breaking down any diseased bone. It is better, I think, not to make a large opening. All we need is a channel for washing out the debris, and then, when in an aseptic condition, the "pocket" will quickly close up. —*Gazette.*

Apropos of the approaching jubilee of the University of Wisconsin, there is an article in the June *Review of Reviews*, by William B. Shaw, telling something of the work of that vigorous institution, as typical of the state universities that have come so rapidly to the front in recent years, especially in the middle west. The University of Wisconsin now has a larger student attendance than Yale's, a faculty of 250, and an annual income of $500,000.

BOOK REVIEW.

Anaesthesia in Dental Surgery, by Thos. D. Luke, M. B., F. R. C. S. E. New York, Rebman Co., 10 W. 23rd St., 1903. Price, $1.50.

In this little volume will be found a large amount of interesting data regarding the anesthetics and anesthetic combinations used in dental surgery.

The ten chapters take up the History of Anaesthesia, Nitrous Oxide, Gas and Oxygen, Gas and Ether, Ethyl Chloride and Ether, Anaesthetics in Special Cases, Local Anaesthesia, Chloroform, Accidents.

This book should be in the hands of every dentist who makes a practice of giving anaesthetics.

Eye Strain in Health and Disease. With special reference to the amelioration or cure of chronic nervous derangements without the aid of drugs. By Ambrose L. Ranney, A. M., M. D. Illustrated, royal octavo. 325 pages. Extra cloth. Beveled edges. Net, $2.00. The F. A. Davis Co., 1914 Cherry St., Philadelphia, publishers.

While this work naturally is one which must be of peculiar interest to eye specialists, the subject matter cannot fail to be of value to the dentist upon whose eyes there is such a constant strain.

It is probably the most complete and scientific embodiment published of the view that eye strain is a very important factor in the causation of many chronic diseases.

We can recommend it as a good book for the dentist to study carefully.

BE DONE WITH EXPERIMENTING.

USE OUR

Paragon Anti Glaze Strips and Disks

n all Grits and Widths to suit Operator and in following Brands:

Samples Free for the Asking.

Paragons, best 2100 linen waterproof, 50c a box, $4.50 a dozen.

Badgers, equal to any common strip at any price, 30c a box, $3.00 a dozen.

Mercurialized Amalgams, especially for Amalgam fillings, 50c a box.

Anti Glaze Disks, either extra thin or ordinary weight, 10c; $1.00 a dozen.

If your dealer has not our goods in stock as yet order direct.
Be sure to ask for our pamphlet on strip and disk manufacture.

PARAGON DENTAL MANFG. CO.,

Originators and Sole Manufacturers of Anti Glaze Strips and Disks. **RACINE, WIS.**

"It didn't hurt a bit!"

WHY?

His Dentist gave him

"Antikamnia & Codeine Tablets"

When to Use Them

FIRST

To ease the nagging and shooting pains while operating; to quiet the nerves, and prevent the headaches and nausea which frequently follow operations, administer one Antikamnia & Codeine Tablet every hour. Give one before beginning operation

SECOND

One Antikamnia & Codeine Tablet given before and another one after extracting a tooth, will stop pain and allay irritability

THIRD

When a painful cavity exists, or a nerve or root is exposed, administer internally one or two Antikamnia & Codeine Tablets and fill the cavity with the powdered tablet, or apply it freely about the gums

FOURTH

For toothache, earache and facial neuralgia, administer one Antikamnia & Codeine Tablet every two hours until relieved

FOR SAMPLES AND LITERATURE, ADDRESS

The Antikamnia Chemical Company ✠ St. Louis, Mo., U. S. A.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA. Dr. A. LAWRENCE. TRADE MARK. **AMALGAM.**

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,—2 oz. $5.50,—4 oz. $10,—10 oz. $20. In 1 oz. and 1-2 oz. Packages.

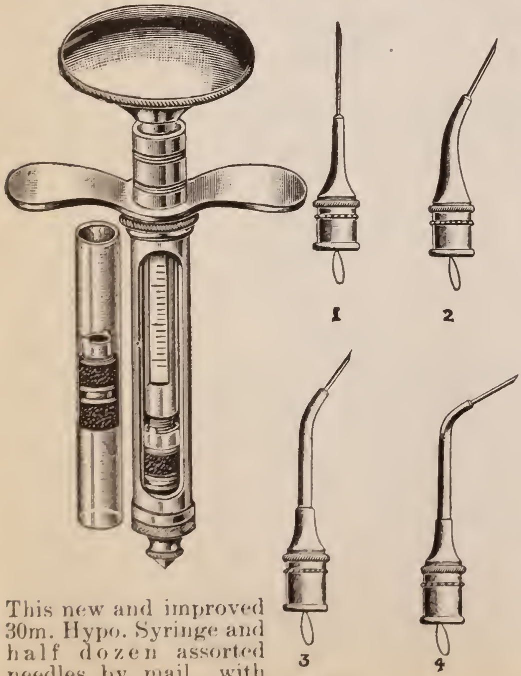
Manufactured only by
AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.
FOR SALE AT THE DENTAL DEPOTS.

BURS : BURS : BURS : BURS

Sample order of two dozen for **$1.25.** First-class Burs—Stubs Steel, Machine Cut, Perfect Temper. Will give rates by gross or half gross with two-dozen order. Sample on request. Order to-day.

J. J. REED, Beloit, Wis.

BURS - BURS - BURS - BURS



NEW

This new and improved 30m. Hypo. Syringe and half dozen assorted needles by mail, with our complete catalogue for $1.00.

Physicians Supply Co.

Dept. A. Passaic, N. J.

Familiarity Brings Content.

THE BEST AND SAFEST

USE

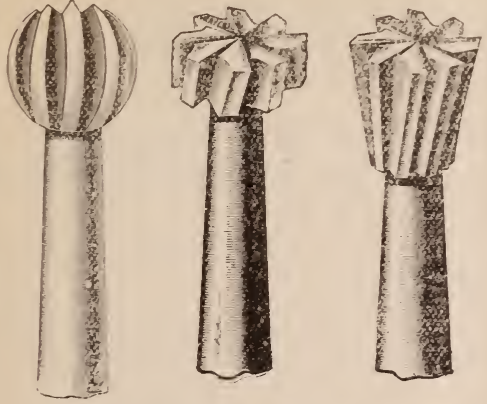
SOLD ROUND THE WORLD

Manufactured only by

The Hisey Dental Mfg. Co.

ST. LOUIS, U. S. A.

SOMETHING NEW.



**Patented in Great Britain,
Germany and the
United States.**

C. H. PINCHES,

Sole American Agent.

DID YOU EVER STOP TO CONSIDER

that the bur you are at present using is weakest where it should be strongest? No matter how good the steel is, there is not enough body at the edges to withstand the strain of cutting through hard teeth and at the same time keeping a sharp edge for a reasonable length of tim.

The New K. Witzel bur will cut quicker and with less pain to the patient than any bur on the market, and last three times as long. They are made from the best grades of steel procurable and are cut perfectly, with no angles to hold the ground tooth matter. They cost you no more than a good bur of the ordinary cut. They can be resharpened by the dentist. They don't jump on the edge of the cavity.

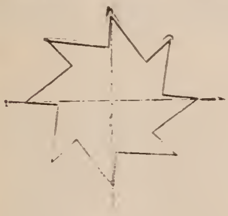


FIG. 1

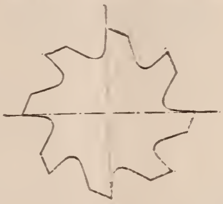


FIG. 2

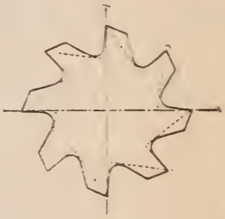


FIG. 3

No. 1 shows a cross sectional view of the ordinary bur, with its weak points and sharp angles which rapidly fill and cause the bur to gum up when in use.

No. 2 is a sectional view of the K. Witzel bur, with its triple lasting power on account of the chisel edges, and no places for the accumulation of tooth matter.

No. 3 gives you an idea of the relative strength of the two burs.

A trial of the K. Witzel bur will convince you that we have not exaggerated their superiority over all others.

In order to introduce these burs on the American market we will make the following prices:

Round Wheel and Inverted Cone.

Nos. 000 to 8, per doz	$1.50	Nos. 13 to 16, per doz	$2.75
Nos. 9 to 12, " "	2 25	Nos. 17 to 20, " "	3.25

QUANTITY RATES ON APPLICATION.

PINCHES DENTAL DEPOT,

TELEPHONE 3221 MORNING

143 West 125th Street, - - - New York City, U. S. A.

Beware of Imitations. None Genuine Without Name K. Witzel on Shank.

Any Dental Depot can Supply them to you.

Barker's Porous Polishers for the Lathe and Engine

Best yet produced for any kind of material and all styles of work.

EFFECTIVE. DURABLE. ECONOMICAL.

A TRIAL WILL CONVINCE YOU.

PRICES: Lathe Wheels and Cones, single, 20c. Sets of five, 50c.
Engine Points, 1 dozen package, 75c.

TRADE SUPPLIED. ASK YOUR DEALER TO SUPPLY YOU.

W. H. H. BARKER, M. D., D. D. S., Inventor and Sole Manufacturer,
CHICAGO, ILL., U. S. A.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Sand-paper Strip Chuck, Cavity Cap Discs, and Capsicum Plasters, and who also carry a general line of Dental Goods at popular prices.

Price of subscriptions, per annum, 50 cents; foreign countries, 75 cents. Lowest advertising rates of any journal. Write for prices. Address

The Teague Dental Supply Co.
Leonard Building, AUGUSTA, GA.

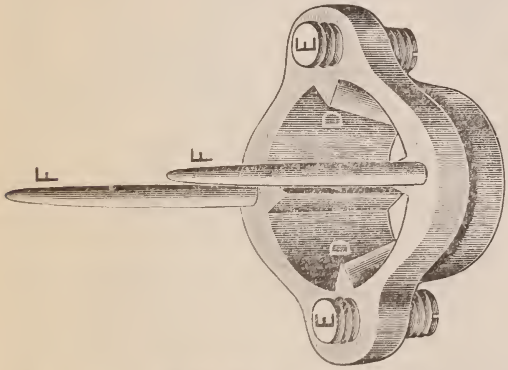


FIG. 2.

Rutherford's Universal Crown Flask

Patent applied for

Descriptive circular will be sent on application to

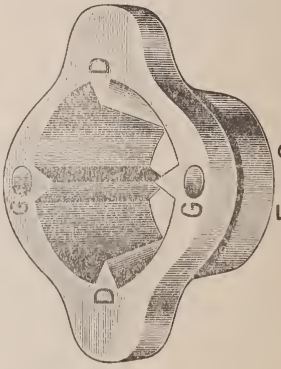


FIG. 3.

ADRIAN SPEAR RUTHERFORD
289 Pleasant Avenue, - - - - New York, N. Y.

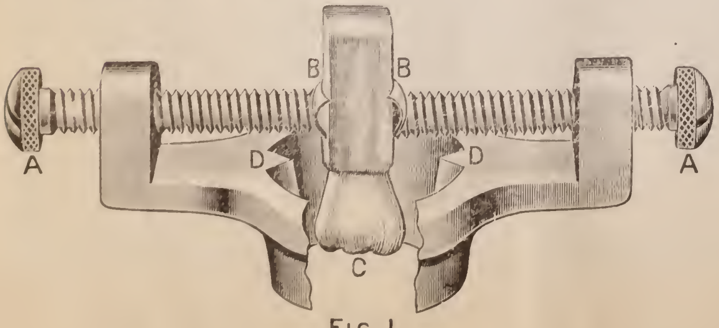


FIG. 1.

Sample box of Rutherford's "Low Heat" Modelling Compound will be sent on receipt of **38c** in stamps. Try our Temporary Stopping, Sticky Wax and Base Plate Wax.

Dr. Abraham's
Oxyphosphate of Zinc Cement

Made in Germany

5 COLORS White Yellow Light Yellow Grey Light Grey

PRICES		QUANTITATIVE PRICES	
Per Box,	*$1.50*	*6 Boxes,*	*$7.50*
Extra Liquid,	*75c*	*12 Boxes,*	*13.50*

GUSTAV SCHARMANN

Sole Importer

1181-83 BROADWAY, - - NEW YORK, N. Y.

MORE CASH FOR OLD GOLD

We Will Give You More in Cash

for your Gold and Platinum scraps and filings than you can get for it in trade.

We have been smelting and refining for twenty-two years, do a very large business and have the most improved and economical facilities for handling Old Gold, Platinum, bench sweeps, etc.

You Take No Risk

We send draft on receipt of every shipment, small or large, and hold same in its exact condition until we hear whether the amount is up to your expectations; if not, we return it, express prepaid. Could any proposition be fairer?

We are sure that if you send one shipment you will send them often.

You can also send us the accumulation of rubbish around your work-bench if you think it contains any gold, and we will give you its value in cash after deducting our small refining charges.

TWO LARGE REFINERIES

WENDELL & CO.

93-95-97 William St., NEW YORK

57 Washington St., CHICAGO

EXTRA PLIABLE
BURNISH GOLD CYLINDERS

1-16 oz., $2.25; 1-2 oz., $17; 1 oz., $34.

Pure Gold Cylinders Gold Ropes	Fine Gold Foil
1-8 oz., $4; 1-2 oz., $15; 1 oz., $29.	1-8 oz., $3.50; 1 oz., $27.

Our Extra Pliable Burnish Gold Cylinders have proved a great success. They work almost with the facility of plastic gold, are very valuable in frail teeth, being very cohesive yet soft and pliable, requiring less pressure to pack densely. Better everywhere than any other form of gold.

Morgan, Hastings & Co.,

817.821 Filbert Street, PHILADELPHIA.

WM. HAHN
220 WASHINGTON STREET, CHICAGO
Manufacturer and Repairer of

Dental Instruments and Specialties

BROACHES

Barbed ½ doz. 50c.

Progressive or Screw Cut
½ doz. 75c.

The Old Reliable—all kinds and sizes. The best that skill and study can produce. Try the "Progressive" Screw Cut.

Superior Dental Finishing Strips

Registered August 12, 1902, No. 9364

CARBORUNDUM—Made in three grits; Coarse, Medium, Fine, and in three widths: Broad, Medium, Narrow, or Assorted, as desired, seven inches long.

DIAMOND—Made in one grit only, and is for finishing and putting the final polish on the filling.

35 cts. per box of one gross or three boxes $1.00

A Free Sample for a postal card

Superior Dental Strip Co.
WATERLOO, N. Y.

Good Stationery

MEANS SUCCESS

We print entirely from Steel Dies, Copper and Steel Plates and would be pleased to submit Samples and Quotations.

ENGRAVED CARDS AND INVITATIONS

100 Script Engraved Cards, one line, including plate, postpaid,	$1.25
100 Script Engraved Invitations, 8 or 9 lines, including plate, with outside and inside Envelopes,	$7.25

Engraving and stock best on market.
Largest House in the World in this line.

The American Embossing Co.,
BUFFALO, NEW YORK

There is ONLY ONE

"DAYTON BROACH"
(INDESTRUCTIBLE.)

Straight.
They Can Not Break.

Spiral.
They Are Efficient.

Tapered.
Why Use Any Other?
Price, All Styles, $1.00 Per Doz.
Manufactured by

Dayton Dental Supply Co.,
S. W. Cor. 5th and Jefferson Sts., Dayton, O.

When a comparatively new material can SUPERSEDE the old standbys in the practice of EXPERIENCED DENTISTS, the argument resolves itself into a single word,

MERIT

This is exactly what RAMESITE CEMENT is doing.

The hundreds of dentists who have tried RAMESITE CEMENT, thus far, have duplicated and continue to duplicate their orders.

After you have tried all other cements
Try Ramesite

After all other cements have failed
Try Ramesite

If you have a piece of bridge work that persists in coming off
Try Ramesite

If you have a Logan or Richmond crown to set
Try Ramesite

If you have to fill a broken down molar—nothing but the walls of enamel left
Try Ramesite

If you have made a nice porcelain inlay and wish it to remain "A thing of beauty and a joy forever"
Try Ramesite

If you wish a durable filling
Try Ramesite

In filling children's teeth
Try Ramesite

In a wet cavity
Try Ramesite

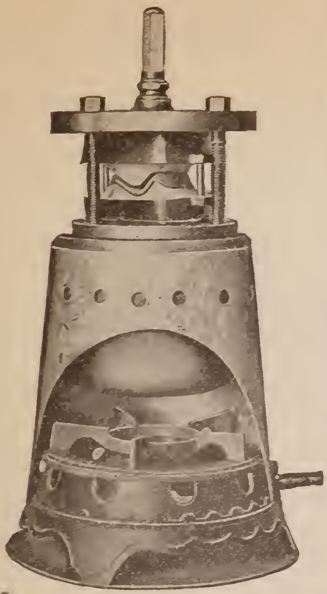
If you are careless in the manipulation of your cement DON'T
Try Ramesite

RAMESITE is not a Careless Man's Cement.

Price per Package of Two Colors, $1.50. Write for Free Sample Package.

Manufactured . . . by **H. G. KNAPP,**

219 SIXTH STREET, - - - PITTSBURG, PA.



SOLVED AT LAST

With this Press you can work Celluloid with the same degree of success you can work rubber. No possible chance to burn plate or crack model. We guarantee it to do just what we claim for it or money refunded.

Write for particulars.

Price complete with burner for Gas or Kerosene $18.00

The Main Points of Superiority of this Blow Pipe outfit over all others is the fact that the Reservoir is made of heavy glass. There is no possibility of rust and you can always see when tank is empty. There are no Valves or complications. It makes a hotter flame than Gas at a great deal less expense.

Price complete............ $11.50

We manufacture Malleable Iron Rubber and Celluloid Flasks. Rubber Flask, Presses (better and stronger than Donhams), Thermometers (complete) to fit any Vulcanizer. Hot Water Heaters exclusively for Dentist's use for Gas or Gasoline. Hand Blow-Pipes made from seamless brass tubing, no spring valve (for gas or gasoline. Write for particulars.

We Calcine Zinc in quantity and pulverize same. Also furnish the best Glacial Phosphoric acid. Alloy made in quantity any per cent. you may want and bottled in 1 oz. or ½ oz. bottles without labels.

SPECIAL DISCOUNTS TO DEALERS

The Wightman Dental Man. Co.

138 State St., Chicago

Can Be Tied In a Knot

CAN NOT BREAK

"MILES"

BROACHES

75c. (Patented) $1.00

PATENTED

Price per set of Three, 50c.

The Miles Steel & Tool Co.,
Middletown, Ohio, U. S. A.

The only Guaranteed non-breakable broach now used by the profession.

THE ACME

Our claim that the Acme is the finest and toughest nerve extractor has not yet been disputed. Remember it is not a reamer, but does the work where the ordinary broach does not reach, viz., in a small or tortuous canal clinging to the side of the walls, and extracting the nerve without any danger of breaking the broach. We are so convinced that they will prove satisfactory that you can return them and have your money refunded. **GET THE ACME.** Price $1.00 per dozen or $9.00 per gross. For sale by all dental depots or the sole manufacturers.

We also manufacture the Rex—a broach similar to the one they charge $2.50 per doz. We will also guarantee this to be equal to it at $1.50. Simply give us a chance to show you on two kinds of nerve extractors—The Acme and Rex—and we are certain to have you for our regular customer.

We take Scrap Gold and Filings in exchange allowing highest market prices.

St Louis Refining Co.
118 East 116 Street, New York

Dentists Attention!

Why not be a Taxidermist? We teach the proper mounting of Birds, Animals, Heads, etc., with perfect success **by mail.** This is a most delightful recreation, and profitable too. If you desire an interesting hobby, this is it. Easily and quickly learned during your spare time. Complete course in 15 lessons, expert instructors, reasonable tuition.

YOUR OFFICE

Can be made the most attractive in the city, by decorating it with beautiful and well mounted specimens. You can defray all current expenses by giving Taxidermy your leisure hours. We have several hundreds of successful dentist students. This is worth your investigation.

Send for our new illustrated catalog. IT'S FREE, and will interest you.

The Northwestern School of Taxidermy, Inc.
Suite 48, Com. Nat'l Bank, Omaha, Neb.

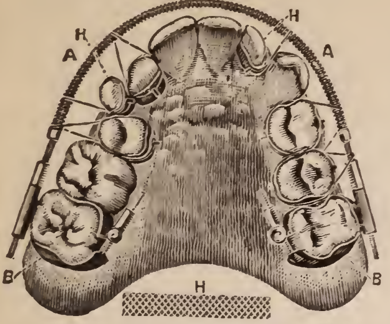
The J. E. Canning

Improved Regulating

AND

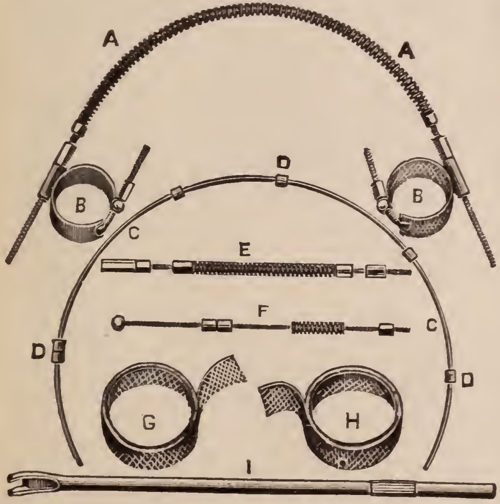
Retaining Appliance

Parts "A-B-H-G" are used in this case.
Price, including wrench, $3.00



The Arch in above cut stands further from the teeth than in an actual case. This is done to better show the Arch and Ligatures.

This cut shows the combination most used, not only for enlarging the Arch, but for individual tooth movement. The portion of the Arch which surrounds the anterior teeth is fitted with a **Removable Spiral Jacket,** which retains ligatures at any angle from the moving tooth. The Arch can be used with or without this Jacket as the case may require.



Price $5.00

PRICE OF PARTS:

A	Expansion Arch	80c.
B	Adjustable Clamp Bands, each	80c.
C	Retaining Wire	30c.
D	Retaining Tubes (6)	30c.
E	Elastic Pressure Jack Screw	80c.
F	Elastic Tension Traction Screw	80c.
G	Indented Band Material, .004	25c.
H	Indented Band Material, .0[illegible]	25c.
I	Wrench	15c.

The Improved Jack and Traction Screws, as seen in the complete set, exert a **Constant, Uniform** and **Elastic** pressure against the moving tooth, and when once adjusted, positively need no further attention. The nuts all remain **Stationary**, the spring follows up **Automatically** the moving tooth and also acts as a **Positive Nut Lock.**

All Band Material is **Rough** or **Indented** and will never slip from the cement.

Booklet containing full instructions for attachment comes with all parts.

Appliances adjusted to models.

ASK YOUR DEALER OR WRITE TO

J. E. CANNING, P. O. Box 869, Denver, Colo.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE

is

one

of

the

best

advertising

mediums

in

the

dental

field

A Fair Trial is all We Ask

THIRD SERIES
VOLUME XXXV
THE OLDEST DENTAL MAGAZINE IN THE WORLD
JULY 1904
NUMBER 7

THE AMERICAN JOURNAL OF DENTAL SCIENCE

ESTABLISHED IN 1839

AN INDEPENDENT DENTAL MAGAZINE PUBLISHED BY DENTISTS FOR DENTISTS.

PUBLISHED MONTHLY
BY WM. GIRD BEECROFT, D.D.S.
MADISON, WIS. U.S.A.

ARE YOU A SUBSCRIBER?

This month we are mailing a large number of sample copies for the purpose of advertising the magazine and securing new subscribers.

When you receive this copy we ask that you kindly look it over, and consider the following points before deciding as to subscribing:

It is a practical magazine—the tendency being to publish short, snappy papers on practical subjects.

Each month fully three-fourths of the matter published is original—papers written expressly for this magazine.

It is published by dentists—and is in every sense independent—and being so, it depends for its existence upon the loyalty with which it is supported by the dental profession.

SUBSCRIBE NOW

It will be sent to you from now to the end of the year for twenty-five cents.

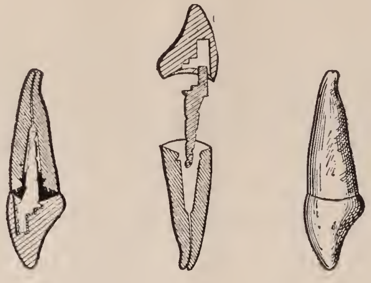
It will be sent from now to the end of 1905 for one dollar.

Please Remember When you are subscribing for magazines that we take subscriptions to all dental magazines at club rates and that you can save money by subscribing through us. Drop us a line stating the magazines you wish to take and we will quote you our rates.

WM. GIRD BEECROFT, D. D. S.
MADISON, WIS., U. S. A.

The Whiteside Crown

(Patented March 17, 1903, February 9, 1904)

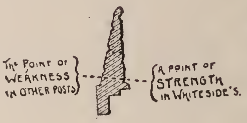


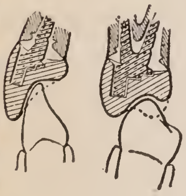
A PERFECT TOOTH CROWN

Strongest, - Easiest to Adapt,
Widest Range of Adaptability

Every mortise in every WHITESIDE CROWN has grooved undercuts on the inside.

Every dowel-pin, used for attaching WHITESIDE CROWNS, is serrated on all four sides. What possible device can make a stronger attachment?


The Point of Weakness in Other Posts
A Point of Strength in Whiteside's



The placement of the mortise, near the labial face of the WHITESIDE CROWN, makes it possible to use this crown in cases of close occlusion without affecting its strength in the least by grinding.

Booklet describing the various applications and modes of mounting the WHITESIDE CROWN sent FREE on application

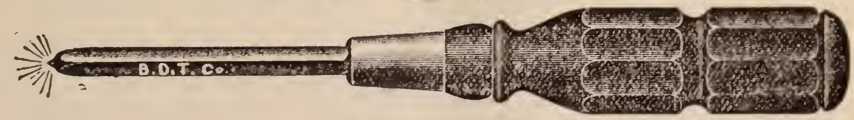
---

The Whiteside Dental Man'f'g. Co.
(INCORPORATED)
DENTAL SPECIALTIES. YOUNGSTOWN, OHIO

A Diamond Drill with a Point

Made from carefully selected stones, diamond fully exposed, and **actually centred.** We guarantee the **setting** and the accuracy in which they run. Especially adapted for drilling retaining points in porcelain teeth and **Etching Inlays.** Price, **$2.50.**

SAVE MONEY



CUT ONE-HALF SIZE

Don't throw away your grinding stones, but true them up with one of our **DIAMOND TURNING TOOLS,** and as a matter of fact they will cut better than they did orginally. Price, **$3.00.**

Our Cavity Shaper, being heavily charged with diamond dust, will be found very valuable in shaping cavities in artificial teeth. Should be run wet. Price, **60 cents** each.

Our Diamond Disk, being heavily charged with diamond dust by our new process, will be found very durable, and will cut on both sides as well as on the edge. These disks are very thin and will be found very valuable in separating teeth. Price, **$1.75** each.

Cavity Shaper

For sale by the leading Dental Depots, or sent, on receipt of price, by the manufacturers,

BOSTON DIAMOND TOOL CO.,

Nos. 114-116 Bedford St., Boston, Mass.

Diamond Disk

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,
Dental Hall, Cor. 33rd and Locust St.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903. Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

WILBER F. LITCH, M. D., D. D. S., Dean,
1507 Walnut St.

ANTISEPTIC DENTISTRY
ASSURED
If You Use Tyree's Antiseptic Powder

Indicated in Ulcerations, Foul Cavities, Extractions, Abscesses and for cleansing all Odorous Secretions.

Sample and Booklet Free.

Costs less and goes 10 times as far as the other kinds.

You add the water and save the cost, thus a reliable, dry and liquid antiseptic in one.

Keep It On Your File

J. S. TYREE, Chemist, WASHINGTON, D. C.

TABLE OF CONTENTS.

July, 1904.

Preparation of Cavities for Porcelain Inlays—Frank E. Cheeseman 113
Making the Matrix—Lee K. Stewart 115
Selecting the Shade—George W. Schwartz 116
Fusing the Porcelain—J. E. Hancock 117
Setting Porcelain Inlays—J. S. Bridges 118
Cavity Preparation—Henry C. Raymond 119
The Past, Present and Future of Porcelain Inlays—Charles C. Patten 121
Porcelain Inlays—Geo. N. Wasser 123
Original Method of Making a Matrix for Inlays—Charles Channing Allen 124
Porcelain Inlays—H. E. Phillips 125
Some Inlay Points—Alexander Jameson 126
Porcelain Art in Dentistry—Herbert L. Wheeler 127
The Fourth International Dental Congress Banquet . . . 131

"THE IDEAL ADJUVANT"

Dentacura

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties*, than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

Samples and literature free.

Address,

Dentacura
Company,
Newark, N. J., U. S. A.

Keep the mouth as nature intended it should be

ALKALINE

Glyco Thymoline Kress

Restores Normal Conditions and maintains perfect

Oral Hygiene

Special Offer. This Bracket Bottle, together with samples for your patients free of all cost, if you mention this journal.

KRESS & OWEN CO.,
MANUFACTURING CHEMISTS
210 Fulton St., New York

The Best Antiseptic for a Dentist's Prescription

LISTERINE

A true prophylactic

Listerine exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

"THE DENTIST'S PATIENT". An interesting little brochure on the care of the teeth, will be forwarded upon request, together with a new pamphlet of 32 quarto pages embodying:

"LISTERINE UNDER THE MICROSCOPE". A tabulated exhibit of the action of Listerine upon inert laboratory compounds.

"COMPARATIVE VALUE OF CERTAIN ANTISEPTICS". An interesting showing of the comparative value and availability of various antiseptics in the treatment of diseases of the oral cavity.

"EXPERIMENTAL RESEARCHES". A report by members of the Association of Analytical Chemists of the Pasteur Institute, Paris, concerning the antiseptic action of Listerine.

LAMBERT PHARMACAL CO.

SAINT LOUIS, U. S. A.

Be assured of genuine Listerine by purchasing an original package.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE
ESTABLISHED IN 1839

THE OLDEST DENTAL MAGAZINE IN THE WORLD
INDEPENDENT---------PUBLISHED BY DENTISTS FOR DENTISTS

VOLUME XXXV
NUMBER 7
THIRD SERIES
JULY
1904

EDITOR:
WM. GIRD BEECROFT, D. D. S., Madison, Wis.
ASSOCIATE EDITORS:
ALBERT H. KETCHAM, D. D. S., Denver, Colo.
EMORY A. BRYANT, D. D. S., Washington, D. C.
GEO. S MARTIN, D. D. S., L. D. S ,Toronto Junction, Ontario.

Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.
Address all communications, both business and editorial to the editor.
Entered as Second Class Matter, Madison, Wis.

PREPARATION OF CAVITIES FOR PORCELAIN INLAYS.

By FRANK E. CHEESEMAN, D. D. S., Chicago.

(Written for *The American Journal of Dental Science.*)

The preparation of cavities for porcelain inlays should not differ materially from the method used for gold fillings as far as retention is concerned, with the exception that there must be no undercuts or interlocking and the cavity must be so shaped that the matrix will draw from it without distortion after having been swaged or burnished.

served and one that invites failure if neglected is that the cavity must be so prepared that when completed the inlay shall have a definite seat which should be as broad as the base as is possible without endangering the pulp.

This to some may seem to be a radical statement, but experience will teach that we cannot hope to do successful inlay operations unless we obtain all the mechanical retention possible.

The walls of the cavity should be nearly parallel and at right angles with the pulpal wall, with a slight divergence outward until the periphery is reached.

This will result in a cavity with narrowest point at the base, which will admit of drawing of the matrix and also will give a perfect adaptation to all cavity surfaces. The margins must be as smooth and sharp as possible, so that there shall be no frail edges of porcelain, and should extend in an unbroken line around the entire cavity. This will give a sharp outline to the matrix, which is indispensable to perfect adaptation.

Gem stones should be used whenever possible as they greatly facilitate the operation in that they cut with more accuracy and rapidity than does the bur.

The Arkansas stones should be used for polishing margins, as their use results in a smooth, sharp surface. They must be used carefully, keeping them wet and revolving engine at high speed. Avoid much pressure as they are delicate and easily broken.

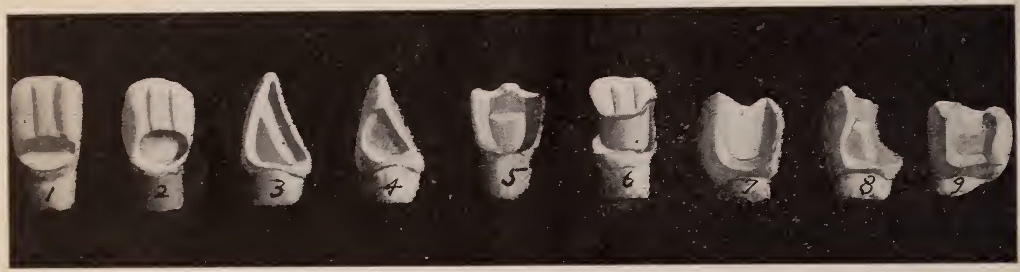
In the class of cavities where these stones cannot be used it will be necessary to resort to burs, polishing margins with disks and dull gold finishing burs.

The rubber dam should be used almost invariably, as more thorough preparation and satisfactory results will follow its use. However, care must be taken that shade for inlay should be selected before its adjustment, as the drying of the tooth will cause temporary change of color.

The saucer-shaped preparation of cavities should never be used. The term is misleading to the inexperienced worker and if taken literally by him must result in discouraging failures, with a loss of confidence in the value of inlay operations due to this unscientific method of preparation.

At the present time there is no cement upon which we can depend for retention of an inlay, unless some form of mechanical retention has been obtained in the preparation of the cavity.

Taken literally a labial cavity, using saucer-shaped preparation, would result as represented in the following illustration, Fig. 1. Although the inlay would be subjected to no stress, still it would be folly to place it in this cavity, expecting it to stay in place. There being no mechanical retention we should be obliged to depend upon the adhesiveness of the cement to both tooth and inlay for retention which, in the experience of the writer, has always proved to be a failure.



Preparation for this class of cavities should be made as follows. (Fig. 2.) Here the floor of the cavity is flat, which serves as a seat, the walls nearly parallel with a slight divergence outward, which will admit of removal of matrix without distortion and for perfect contact of completed inlay to all cavity surfaces.

For a cavity prepared like this the cement simply acts as an adhesive medium between the inlay and tooth, the mechanical retention having been secured in the preparation of the cavity.

In the preparation of proximo occlusal cavities for incisors (Fig. 3) the floor should be extended lingually to admit of the widest possible seat, with a slight groove cervically, lingually, and at the incisal edge for retention. For pulpless teeth this preparation may be extended with better probability of success, as the broader the seat, the better opportunity we have for successful retention of inlay.

In the preparation of simple approximal cavities for incisors and cuspids the walls should be nearly parallel and at right angles with the pulpal wall. (Fig. 4.)

Much has been said as to the inherent edge weakness of porcelain, and certain writers and those joining in the discussion have on that score condemned its use for compound occlusal cavities in bicuspids and molars. This argument was intended as a warning to the inexperienced rather than a belief that porcelain inlays or fillings are not applicable for this class of cavities, at least it has been so admitted by one of these gentlemen. There is no question that it would be much safer to limit its use to the anterior teeth until experience has made the operator proficient in the perfect fitting of matrices and in the proper manipulation of the porcelain.

After that point has been reached it is only a matter of judgment of the operator as to its use in all classes of cavities, except fissure cavities in bicuspids and molars and pit cavities on the lingual aspect of the anterior teeth where gold foil fillings are clearly indicated.

The two following methods of preparation will safe-guard the margins of the inlay:

First, by extending the margins of the cavity beyond any point of contact with occluding tooth; second, if such procedure will result in the unnecessary loss of tooth structure by grinding the occluding tooth at the point it would come in contact with margins of inlay.

When such extension is resorted to care must be taken that allowance be made for a sufficient bulk of porcelain to fully withstand the stress of mastication.

These safeguards taken, there is much less liability to the fracture of porcelain than there is to a recurrence of decay at the cervical margins of gold fillings, and the consequences are much less grave if it should take place, the defective point being on a self-cleansing surface and under easy observation of the dentist.

For this class of cavities, which are generally extensive, it is good practice to make use of the step formation wherever possible, as they are more self-retentive, using the same general plan of walls, diverging slightly from the parallel with a broad seat for retention, keeping in mind that cavity must be deep enough that exposed point of inlay shall have sufficient bulk of porcelain to withstand stress of mastication.

The following illustrations are as nearly as possible reproductions of formation of cavities that have been used in practical cases by the writer. Fig. 5 represents a central incisor, involving one-third of the incisal edge. The entire lingual portion of the tooth was cut to the gingival margin to allow of a broad seat for retention, with grooves mesially and distally, also using the step formation. For this class of cavities extensive preparation is necessary to obtain true mechanical retention.

Fig. 6 represents a mesio labia distal cavity in a central incisor, which when presented had defective gold fillings "which had been inserted six months previously by a good operator" in the mesial and distal surfaces and two cement fillings on the labial surface teeth were very defective in structure, presenting what seemed to be a hopeless condition and the dental organs presenting a discouraging appearance. Removed all the fillings and made one compound cavity extending well into sound territory. This inlay has rendered good service for eighteen months, with no recurrence of decay.

Fig. 7 represents a common form of bicuspid restoration. The formation of the cavity is such as not to admit of the step preparation.

Fig. 8 represents a more complicated cavity in bicuspid, necessitating the restoration of the lingual cusp.

Fig. 9 a proximo occlusal cavity in molar, using the step method of preparation.

This paper has been prepared with a view of encouraging those about to take up this class of work, and if possible to restimulate the interest of those who have abandoned its use as a result of unscientific cavity preparation. I have endeavored to bring out clearly and concisely the point which I consider necessary to successful cavity preparation, and if I have sufficiently urged the necessity for the maximum amount of mechanical retention possible to obtain and have made clear and emphatic enough that no dependence can be placed upon cement for this purpose and that it simply acts as an adhesive medium between inlay and tooth, my time will not have been spent in vain.

MAKING THE MATRIX.

By Lee K. Stewart, D. D. S., Chicago.

(Written for *The American Journal of Dental Science.*)

With the cavity prepared and easy access obtained, if necessary by some method of separation, or the forcing of the gum away with gutta-percha temporary stopping or cotton, the next step is the making of the matrix.

The artistic in porcelain filling is founded upon good cavity preparation and matrix adaptation. Inlays are not quickly made, and to get beautiful and lasting results, patience and skill must be exercised in fitting the metal foundation. Too often this part of the operation is slighted with the expectation that the cement will fill the spaces.

This is a very great mistake, for it both makes a much weaker filling and the mass of cement alters the color of the porcelain.

With experience the operator acquires skill sufficient to fit the matrix, in the simpler cases, directly to the cavity.

It is not the purpose of this paper to treat of these cavities but the method advised will be applicable in all cases, whether gold or platinum is used, and is as follows:

Thoroughly rub into the cavity cotton covered with soap-stone or talcum powder, and then carefully wipe out all of this material.

Take an impression of the cavity with one of the quick setting cements mixed quite thickly and firmly forced into place. When hard, remove and you have a good cement impression of the cavity. Surround the impression with wax and fill it with Fellowship amalgam, being careful to pack it in small quantities and with considerable pressure. Allow the amalgam to harden and separate. If the cement impression is of such shape that there is danger of breaking the edge of the amalgam model, immerse the mass in aqua ammonia for several hours before separating.

Mount that amalgam model of the cavity with modelling compound, in the cup of the Brewster water bag swedging press. Burnish the metal for the matrix loosely into the floor of the cavity, cover the matrix with some moistened absorbent cotton and put under slight pressure in the press. Remove the cup and cotton, burnish out any folds in the metal, anneal and repeat, using more pressure each time until the matrix fits the model. After the metal has been thoroughly swedged into place, carefully anneal and again put under pressure as before. This last is very important in order to prevent the drawing of the metal in the fusing of the porcelain and gives an annealed matrix which perfectly fits the amalgam model of the cavity.

If gold is used and consequently a low fusing porcelain, fill the matrix to the desired contour and fuse cool and place the inlay in position on the model. The shrinkage in firing will be considerable and the outer edge of the matrix will be free from the porcelain, so you can burnish the margins again in the model if necessary. Add porcelain leaving the outer edge of the matrix exposed and fuse once more. At the next sitting of the patient, place the inlay in position and burnish carefully the edge of the matrix which you have left uncovered to the outer walls of the cavity, add the necessary porcelain and complete. A strip of rubber dam drawn over the inlay and tooth holds it in position, and facilitates the final fitting.

In using platinum and a high fusing porcelain with a higher fusing foundation body, after the matrix has been completed fuse the proper amount of foundation body into the matrix leaving the margins exposed. If the case is a large one it may be advantageous to make two bakings of the foundation body. After this is completed, fit the partially made inlay directly to the cavity in the tooth, as with the gold matrix and finish.

There are many advantages in making the matrix in this way, as you get the benefit of the amalgam model and later complete the matrix in the tooth cavity. It is first fitted to as good a model of the cavity as can be made and then put into the cavity in the tooth, after enough porcelain has been fused in the matrix to firmly establish the shape of the inner part, and the outer walls are easily and accurately burnished to the walls of the tooth. This gives an opportunity to make any changes that may be found necessary and to test and perfect the fit of the matrix. In describing this method it has been essential to say something of the first fusings of the porcelain.

SELECTING THE SHADE.

By Geo. W. Schwartz, M. D., D. D. S., Chicago.

(Written for *The American Journal of Dental Science.*)

While the subject of selecting the shade in inlay work is not an extensive one it is an important one.

In the use of the shade guide all matching should be done before the rubber dam is adjusted. After selecting the shade in a natural light, compare it also in an artificial light, with the room previously darkened, if you wish to be critical. Then view the shade from both sides of the chair in various angles.

Experience teaches that porcelain fillings for the mesial surfaces of the eight anterior teeth should be a shade darker than the tooth, while those for the distal should be a shade lighter.

For second bicuspids and molars it is safe to bake from one to two shades darker as a rule, with few exceptions. In centrals and laterals it is a safe rule to use white as a foundation, finishing with the colors desired, while nearly all posterior to these should have a yellow foundation. The color of the cusps in almost all bicuspids and molars incline to blue, with few exceptions. In most teeth the cusps are lighter at the point and the body should be built on, with this fact in mind.

The color of the cement should not be over-looked by beginners. It is a suggestion on my part to begin by the use of one color cement and that a yellow, at the most not more than two, a yellow and a blue. It is not advisable for the beginner to depend on his ability to select the color of his cement to help the shade of his inlay; if he does he will meet with many disappointments, for instance: an inlay we will say for a yellow tooth that matches it almost perfectly before it is cemented, after being cemented in place with a yellow cement that matches, will make the inlay or filling appear from one to two shades darker than before it was cemented. The same is true of the blue shade. For this reason it is my belief the beginner can better learn to shade his porcelain to the cement than to depend on the selection of the cement for the matched inlay. I wish to say this statement is not entirely original with me, as it was advanced by Dr. Cheeseman also.

In working colors for cusp restoration in molars and bicuspids, I find the use of dark brown and dark yellow in the fissures, as the case may require, results in good effects. I have had very satisfactory and artistic results in the use of oil colors for the fissures and buccal margins and unhesitatingly recommend them to beginners.

As a safe plan I would advise baking a button from each bottle of inlay material and gluing it to a white card, then pasting it to the bottle. While shades run reasonably true, it is very convenient to know the exact shade of each bottle.

I understand this article is for beginners, so I will not confuse them with further details.

FUSING THE PORCELAIN.

By J. E. Hancock, D. D. S., Chicago.

(Written for *The American Journal of Dental Science.*)

In my experience there is nothing which gave me so much trouble and kept me so constantly in "hot water" as learning to properly fuse porcelain, and I do not believe that my experience has been so widely at variance with others. It matters not how carefully or artistically the cavity may be prepared or how accurately the matrix may be burnished or swaged, or how perfectly the shades may be selected and blended, the work all goes for naught and the porcelain becomes a useless mass unless it is properly baked. The usual and disastrous mistake made by beginners (and sometimes by so-called experts) is the *"over fuse."* Better by far have the piece baked just a trifle too little than a trifle too much. In fact, in my own work I seldom carry my heat to the point of complete vitrification, preferirng a "high" biscuit that I may preserve the shades, and relying upon Brewster's "XX" enamel, which is very much lower fusing (and, by the way, like cement it covers a multitude of sins) to give the complete glaze without destroying in any degree the underlying shades of the "high" fusing body and at the same time preserving that translucent effect which we should all try to attain in our inlay work. If an inlay should be *over* fused the piece becomes porous and brittle, the edge strength and shades destroyed and what perhaps would otherwise have been a perfect piece of work becomes nothing more than glass and consequently useless, and now we are compelled to begin all over again and are puzzled to know what the trouble is. The shade guide which accompanies each porcelain outfit is usually correctly fused, and if the student of porcelain will experiment until he can duplicate these the *bake* is pretty sure to be correct. A good and safe rule for the beginner to follow until he becomes sufficiently expert by experience to fuse by the "eye," is what is usually designated as the gold *test*. In other words place upon the fire-clay slab alongside of the piece to be baked a small pellet of pure gold, turn on the heat and on the instant that the gold becomes globular take the time and give so many minutes and seconds before the current is switched off, or if using a gasoline oven so many minutes and seconds before the pressure in the tank is reduced. It has been my observation that no two furnaces fuse in exactly the same time and therefore no given rule can be submitted as to time. Each furnace, of whatever make, must be tested as to time of fusing when purchased and the test may be made in the following manner, viz.: Make a small *pot* of the porcelain evaporating the moisture with perfectly clean piece of white blotting paper, place upon a piece of platinum plate and put on a fire-clay slab. Insert in the furnace placing a small piece of pure gold alongside on the fire clay, turn on the heat and gradually increase until the gold becomes globular, "catch" the time and let it run, say, 30 seconds. Reduce heat until you can see whether or not the piece is fused. If not make another small pot of porcelain and proceed in the same manner as before, adding 5 seconds to the time, and so on until fuse is perfect. Make a note of the procedure and the time required and it will be found that that particular body will come from the furnace of about the same density and glaze each time. It is claimed by some that the fusing of porcelain by the "eye" is a detriment to the sight and should be strenuously avoided. Personally, so far I have had no trouble in this direction, but can readily conceive of the injurious effects which might follow the prolonged inspection of such intense heat. To overcome this Dr. Price of Cleveland, Ohio, has recently placed upon the market a very ingenious instrument which controls and regulates the heat to a nicety without the necessity of the operator's looking into the furnace at all. This instrument, or pyrometer as it is designated, can only be used in connection with the electric oven (and besides is quite expensive), therefore it is useless only where the electric current is obtainable. The proper fusing of porcelain can only be acquired by diligent experimentation and patient observation, and each step in the procedure should be carefully noted and remembered. Dr. Hart J. Goslee (to whom the dental profession is indebted for a large fund of information on these subjects and whose genius I recognize and have the greatest respect for) depreciates the gold test and claims that fusing by the *eye* is the best method extant. For him this may be true, but for the beginner I feel quite sure that the gold *test* is the safest because the student has something tangible by which to judge the procedure. In conclusion I would advise deliberation and care, and time will add the other qualifications.

SETTING PORCELAIN INLAYS.

By J. S. Bridges, D. D. S., Chicago.

(Written for *The American Journal of Dental Science.*)

Setting an inlay is the simplest, but possibly the most trying of all preceding steps. Upon a trifle, perhaps, hangs the fate of a creation we have nursed through many tedious moments. Calmness, carefulness and preparation will lead to success when a lack of either might bring heart breaking disaster.

Assuming our finished inlay has previously been tried in the cavity, and the test is to our liking, we are ready to seat the restoration into the waiting cavity.

Preparation.—Lay out the mixing slab, chilling it if the weather is excessively warm. Place upon one corner a small heap of powder and opposte a bit of liquid, dropped from the bottle. A medium sized German silver spatula should be laid near by. Invert the inlay upon a bed of yellow beeswax, and with an orange wood stick drop the hydrofluoric acid on the upturned surface, previously observing that the margins are securely sealed to guard the glazed surface from injury. Allowing the acid to remain, possibly three minutes, wash off the water. With compressed air, alcohol and a fine pointed instrument remove every particle of powdered porcelain from the inlay.

By means of absorbent cotton rolls, linen napkins, spunk, alcohol and compressed air the cavity is isolated and thoroughly dried. The rubber dam is not advised except in rare cases; for by far too much danger is incurred from its tendency to buckle at the margins or become sticky from surplus cement, entangling the fingers or instruments; besides a few cervical cavities will permit the use of a clamp or ligatures without extreme discomfort to your patient and considerable physical exertion to yourself.

Birds-eye linen cut in squares of about six inches make convenient sized napkins. Turn down a corner about an inch then fold to the center from the right and left and a splendid and comfortable dam for the superior teeth is formed. Cotton rolls give most excellent service about the inferior teeth and for banking against the salivary ducts when the flow is over copious. Spunk is an admirable assistant for drying the cavity and may be used to advantage if left in the cavity to absorb any secretions during the mixing of the cement.

Mixing the Cement.—Bring the powder gradually, a small portion at a time, into the liquid, stirring one way until a thin cream is formed that just absorbs the last exudate of liquid. Take sufficient of this upon the point of the spatula to spread over the floor of the cavity and the base of the inlay. This done, continue adding powder to the mixture until the cream is so heavy you dare not add more for fear of losing the necessary adhesiveness. Place enough of this in the cavity to fill it to a generous overflow.

Seating the Inlay.—Quickly grasp the inlay with a pair of pliers and gently coax the filling over, but not completely, into its proper seat. Now, with another pair of pliers (the first most likely are gummed with cement) pick out a bit of spunk and press the inlay thoroughly home. The thin spread of cement by this time having nicely soaked into the tubulii of the cementum and the crevices of the porcelain, will act as a flux to the heavier cement sandwiched between and should allow the inlay to find its proper seat with but little strain. This arrangement of the cement will overcome many disasters from an insufficiently dense body the lack of which permits the fluids to soon undermine and cause an otherwise perfect restoration to fail.

A simple mix may make the seating somewhat easier but will leave little powder behind for the over abundance of liquid carries most of it away when the inlay is forced into place.

Frequently in seating interior fillings there is not enough space to readily manipulate the spunk. When such is the case a cuttle fish strip will be found of excellent service. Slip the tape between the inlay and approximal tooth and with the thumb or forefinger hold the end tight aganst some adjacent tooth upon the side the inlay has been inserted. With the other hand draw the tape taut and gently force the filling into place. To overcome the expansion of the cement during the process of the setting, the inlay should be kept under pressure for at least twenty minutes before allowing the moisture to reach it. When this is out of the question permit a large amount of cement to remain about the margins, possibly covering same with cement varnish, or melted paraffine which may be cleared off at the next appointment.

It should seldom be necessary to polish or grind any surface but the occlusal.

A smooth strip at the cervical margin is frequently beneficial, and when used should be followed by a bit of whiting placed under the strip, which will nicely bring back a safe surface to the products our best porcelain manufacturers have placed upon the market.

CAVITY PREPARATION.

By Henry C. Raymond, D. D. S.,
Detroit, Mich.

(Written for *The American Journal of Dental Science.*)

It is not the intention of this short article to give a detailed description of cavity formation for porcelain fillings, as the writer has not had the time in which to prepare models for the illustratons which should accompany such a paper. But some remarks in general on the subject may not be out of place when it is considered what a vague idea many seem to have regarding it.

Some writers on porcelain inlay work have been far from clear in their remarks on the preparation of cavities. This along with some unfortunate remarks in society discussions, from which many have been led to believe that the cement used in the work is the all important factor in retaining inlays, has led many to think that the form of the cavity is of secondary consideration; the main thing being a good cement, by the use of which a piece of porcelain may be made to retain its position on almost any kind of a formation, ranging all the way from that of a saucer-shaped cavity to a flat surface. This has been a grave error, and has done much to bring about the many failures that have occurred in the use of porcelain, and has discouraged many who have attempted it.

The correct formation of the cavity for any of the so-called permanent filling materials is of the greatest importance, and this applies as much to the use of porcelain as to any other material.

The saucer-shaped cavity which has been so often spoken of has no place in porcelain work at all. A cavity for a porcelain inlay of the simplest kind should have a definite formation, a formation for porcelain work, and differing principally from the form of cavity used for gold and amalgam, in that it must be without undercuts or interlocking walls. With a saucer-shaped cavity or one without a decided form, it is almost impossible to set the inlay in its correct position, as the cement beneath causes it to roll around and slip out of place; but with the walls at the proper angles, and base or floor forming a decided seat, it can only go to one position. For this reason a retentive form should be given to the simplest cavities, by cutting the walls so that they form an abtuse angle with the floor of the cavity. It is not meant that a sharp angle should be made at the junction of wall and floor, as we would then have a corner into which it would be difficult to burnish the matrix, but that the direction of the walls with the floor should be that of an obtuse angle, without the definite point which would form a perfect angle. This obtuse angle formation of cavity walls applies largely to all cavities, with some slight modifications. Parallel walls are not necessary, and should never be made, as they might interfere with withdrawing the matrix; and when setting the inlay the cement is likely to pack at the bottom of the cavity, and prevent it from going home, or if the inlay does go to place it sinks slightly below the cavity margin, which is not the case when the walls are at an obtuse angle.

To give a decided seat to this class of cavities, i. e., those on the labial surfaces and those on the approximal surfaces of the incisors and cuspids not involving the incisal surface, a slight depression should be cut with a small round bur on the floor of the cavity, usually in the form of a triangle. This is especially necessary when such cavities are rather shallow, though all cavities should be cut deep enough to prevent reflection of cement through a too thin body of porcelain.

In forming compound cavities, the cutting to the point of extension for prevention should be largely carried out, though it may not be necessary to carry this so far as for gold, as caries is less likely to recur around a porcelain filling. Of course we should cut far enough so that there may be strong walls, well supported by dentine wherever possible, especially in bicuspids and molars.

In approximo incisal cavities have as decided a base or seat at the cervical portion as the tooth will permit, and in the superior teeth the lingual walls should be cut away in excess of the labial, to prevent possible displacement of the filling by the inferior teeth during mastication. In these cavities a step should be cut on the lingual surface near the incisal edge if the tooth is strong and thick enough at that point, if it is not the step may be cut in the middle third or nearer the cervix. In the bicuspids and molars also get as good a seat at the cervical wall as possible, and as broad a step extending from the approximal surface to the occlusal as size of cavity will permit. With cavities formed in this way with definite bases for the inlays to rest upon, and walls cut at the proper angles, there need be little fear of displacement, provided of course that we get a perfectly burnished matrix and use proper care in the setting. In short the aim is to get all the retention form possible in all cavities, especially where the force exerted during mastication is likely to cause dsplacement, keeping well in the mind the fact that the formation must be such that the matrix may be withdrawn without changing its form. There must be *no* undercuts of any kind and angles must not be too definite. Walls must diverge toward the margins at all points. This in large, compound cavities requires careful watching.

Too much care cannot be used in preparing cavity margins. There must be no outward bevel at all, as there is for gold, as there is then a thin, weak margin or feathered edge to the inlay, which if it does not fracture when it is being set is likely to do so very soon afterwards. The bevel should be inwards and whenever possible it is best to have the natural bevel which comes from a continuous straight line from the floor of the cavity to margin, instead of breaking the line by forming a more acute angle at the margin, which gives a thin edge to the porcelain, and is consequently its weak point. This may not cause material trouble in simple inlays, though with these, when setting, if too much force is used on one side before the inlay is down in place a fracture may occur, and a faulty margin results. But inlays on or extending into the occlusal surface of bicuspids and molars having weak margins are certain to fracture there when subjected to pressure from the opposing teeth during mastication. In these cases especially, cut straight from the enamel to the floor of the cavity, finishing with a perfect angle at the margin, without further bevel. There is then a strong body of porcelain extending right to the margin, and the weak point so frequently spoken of in this class of fillings is entirely eliminated.

The marginal lines should be cut in rounded and curved forms, without angles, in the anterior teeth at any rate. Though some writers advocate definite angles at the margins in their method of cavity formation, and others think that such angles aid in the retention of the inlay, and also add to its natural appearance, it is the writer's experience that decided angles are not necessary either within the cavity or at the margins. Such angles make it very difficult to perfectly burnish the matrix at those points and frequently result in perforations there; such perforation at any marginal point of course ruins the matrix. It is much easier to burnish over slightly rounded corners, and curved marginal lines show the joint less and form a more natural appearance than is possible with straight lines and angles.

All margins should be well defined, cut to a knife edge, yet as smooth as possible.

This matter of cavity preparation, though governed by certain mechanical principles, is also largely governed by good judgment, without the use of which we can hardly expect to attain success in anything we undertake.

The location of a tooth being operated upon, its bulk and strength, with the masticatory force exerted upon it, must all be taken into consideration in the formation of the cavity to receive the porcelain, the object being to obtain all the retention form the requirements of the case call for and the circumstances will permit.

THE PAST, PRESENT AND FUTURE OF PORCELAIN INLAYS.

By Charles C. Patten, D. D. S.,
Boston.

(Written for *The American Journal of Dental Science.*)

The use of porcelain inlays as a means of checking the ravages of caries in the natural teeth is just now passing through a critical stage. We have arrived at this period after several years of enthusiasm and widespread interest. For at least four or five years back no dental convention or society meeting could call its program complete without one or more clinics or papers for the demonstration of porcelain in some form or other. The main point of interest has been concentrated upon its application as a cavity stopper.

There are still a very great many doubting Thomases pointing the finger of scorn and predicting for it a future of innocuous desuetude. New ideas as well as methods generally meet with considerable opposition from one source or another but it usually comes from people who have condemned it theoretically, not having given it a practical trial or having given it a trial failed for want of skill.

We would not think of condemning the church or even Christian religion just because some church members who profess to be Christians prove to be black sheep.

No more should we condemn porcelain because failures result from carelessness or inexperience. All kinds of operative dentistry may be subjected to abuse of some form, but it does not prove the entire absence of good when rightly used. Bridge and crown work, for instance, have been most abominally abused and yet no one can deny their advantages when used with judgment. Recklessness has no doubt been shown in the use of porcelain, and while it does to a certain extent injure its standing it will in no way influence the competent operator, unless it be to stimulate him to climb to a still higher level in his operative skill. The incompetent or unskillful ones will work out their own execution in this line of work. Porcelain will find its rightful standing within the next few years.

We have looked upon all kinds of operators, all kinds of work, all kinds of methods and materials and listened to all kinds of ideas and suggestions as to which method and material was superior and the reason of its superiority, but every individual must be his own supreme judge as to what method he will pursue and whether his results will come up to the standard. Nothing but the very best will pass muster. Poor fillings of other material will appear to be satisfactory for a time but not so with porcelain. Their imperfections are plainly evident at the very beginning. It does not need the hand of time to develop them.

No one would care to predict that the future does not hold concealed within its mighty grip something more nearly perfect than porcelain combined with cement, but it would seem as though the limit had been reached. The far cry now is for some perfectly insoluble cement for securing the porcelain in place in the cavity. At present there is certainly much to be desired in this respect. Perhaps when some great mind successfully solves this question, vital and deeply interesting as it is, the cement alone will meet all requirements and the porcelain can be dispensed with. It is certainly a fact that either the cement or porcelain can most nearly meet the demands for an ideal filling. The porcelain without the medium of cement is of course useless, therefore to cement must be accorded first place.

The ideal qualities in porcelain consist mainly in its possibility for restoring to perfect harmony the appearance of the teeth. This it can do in a manner superior to any other thing now in use. It can also claim non-conductivity as one of its virtues. Otherwise it has little to commend it as a cavity stopper.

Perfect results require a higher degree of skill than can usually be attained by the average operator. It can hardly claim ease of adaptability, one of the requirements of an ideal filling, and owing to its friable nature it is very susceptible to breakage. In a way its field of usefulness is limited. The skill necessary and time consumed preclude its use among a class of patients who are not financially able to sufficiently remunerate a dentist that he may give the very best that is in him. The enthusiasm of youth when we are prodigal of our time and lavish with our efforts that reputation may result is soon succeeded by the hum-drum of daily existence. Under these circumstances one is justified in expecting compensation that will well repay the high degree of skill and nerve force required in this kind of work.

This argument may savor of commercialism to some, but facts are facts.

The universal inclination among porcelain workers of experience leans towards conservatism. The greatest field that opens up for the work is mainly cavities that come within the range of vision. This involves the superior and inferior front teeth and includes the bicuspids and sometimes first molars. Exceptions can be made and include the other molars, but not often. In the mind of the writer the main function will be to restore a harmonious appearance. Unsightly, glaring gold fillings can be replaced by porcelain with most beautiful results.

It possesses other desirable features well worthy consideration. One that permits of especial mention applies to the treatment of buccal or labial cavities extending to or beyond gum margins where filling with gold means no end of discomfort to patient and the results to operator are seldom entirely satisfactory. This class of cases when skilfully filled, while not exactly a "joy forever are things of beauty." The gingival margins take more kindly to porcelain than gold in such places. Perfect cleanliness is more easily secured and maintained. Approximal cavities not involving the occusal surface or incisal edge are equally promising of success. The various other classes with their different conditions are many and cannot be considered in a brief article.

To sum up: porcelain is by no means a fad, but must be accepted by the profession as one of our standard articles. It must be used with consummate judgment and skill and when so used will amply repay both patient and operator in not only its lasting qualities but beautiful appearance.

PORCELAIN INLAYS.

By Geo. N. Wasser, D. D. S., Cleveland, Ohio.

(Written for *The American Journal of Dental Science.*)

In writing this paper I have nothing new or original to offer. My only excuse for so doing is the hope that it may help those who are interested in porcelain as a filling material.

From an esthetic consideration, it is pre-eminently the ideal filling. The method I will describe is simple, efficient and productive of beautiful results, if every detail is carefully carried out.

Great discretion should be exercised in the use of this material. It is rarely ever indicated back of the six anterior teeth, on account of the inability to obtain sufficient anchorage.

Porcelain restorations involving the incisal edge must be made to avoid all contact with opposing teeth.

SEPARATION IS IMPERATIVE.

In preparing cavities, undercuts must be studiously avoided and right angles attained as far as possible, that is, in the interior of the cavity. By all means avoid beveled margins. After the cavity is prepared, select your colors, noting the variations in shade from the cervix which is usually a shade darker than the cutting edge. It is understood that the colors must be chosen before the rubber-dam is applied. Where it is possible the rubber-dam should not be used until the inlay is ready to set, as it usually interferes with the procuring of a good matrix. Platinum one one-thousandth of an inch is used for the matrix. This is cut the size desired and held to the cavity, and with pledgets of wet cotton forced to the bottom. Remove the cotton and thoroughly anneal platinum. Carry to place again, and with suitable burnishers (preferably Dr. Reeves' design) it is burnished from within out. Again anneal place in cavity and with English twill tape force to margins holding tightly over tooth and matrix, and thus enabling the operator to burnish matrix without danger of dislodgment. Anneal for the last time and carefully introduce into place, using heavy rubber-dam instead of tape and wetting burnishers to prevent them from sticking to the rubber. In cervical cavities cement impression is used to hold matrix instead of tape and rubber. Each step may be repeated as often as is necessary to secure a matrix free from folds. The matrix is now grasped by the extreme edge with locking pliers, and the foundation body placed therein. In most cases the yellow shade No. 13 is used for the first bake. I have been able to get the best results with Brewster's High Fusing Porcelain.

The powdered porcelain should be mixed with water to such a consistency that it can be readily carved. Keep labial margins free from foundation body allowing sufficient depth to build in selected colors. Bake foundation until slightly glazed, allow to cool, and then build in and carve to desired shape. The building, carving and baking is repeated until the proper contour is accomplished.

Great care should be taken at all times to prevent the porcelain from running over the margins. This can be done by the use of a small camels-hair brush.

After the final baking the filling must be allowed to cool slowly in order to temper it.

When the platinum has been stripped off, bury the face of the inlay in wax, and etch the back with hydrofluoric acid. This usually requires about five minutes. Carefully wash off acid, thoroughly dry, and with rubber-dam in place, the inlay is ready to set. I prefer Ames Special Inlay Cement, which should be used according to directions.

With the cement in cavity, force inlay into place, and hold firmly until cement is set, either with a wooden wedge or a silk ligature tied about tooth and inlay with a surgeon's knot.

SOME REMARKS ON PORCELAIN INLAYS.

By Rea Proctor McGee, M. D., D. D. S., Denver, Colo.

(Written for *The American Journal of Dental Science.*)

The porcelain inlay, in suitable cases, is the most perfect substitute for missing tooth structure that has yet been devised. In unsuitable cases it is a complete failure. It is indicated in fractures of the anterior teeth where less than half of the crown of the tooth is lost; in large cavities where gold would be unsightly; in cases where the patient is physically unable to stand the condensation of gold; in very frail teeth; and in cavities in which the pulp is nearly exposed and it is undesirable to devitalize, particularly in children's teeth.

The inlay is contra-indicated in small cavities upon the occlusal surface, or in any position where there is not sufficient bulk of porcelain to withstand the strain of mastication. The cavity must be so cut that the matrix can be removed without bending. The base of the cavity must be as nearly as possible at right angles to the walls so that the margin of the inlay will have a considerable bulk and not fade away to a feather edge. The heavier the edge of the inlay, the stronger it will be and more perfect the margin. The inlay will also be more easily set and the cement will retain it better.

The inlays that fail are usually the ones that were set in saucer-shaped cavities. The thin edge chips away, making an imperfect margin. The thinning of the edge also destroys the color effect, giving a whitish appearance near the margin.

I have always used the high fusing bodies and find them very satisfactory. I know nothing of the low fusing bodies, never having tried them.

After having prepared my cavity, with the margin as deep as possible, I swedge a matrix of very thin platinum foil with pellets of wet cotton, condensed with an amalgam plugger. Without trimming the matrix I place a little finely ground Close's body in the center of the depression and biscuit it. Then the matrix is approximately trimmed, returned to the cavity and re-burnshed, removed, trimmed closely and again fitted to the cavity. Then the matrix is carefully removed and filled with the colored porcelain mixed to approximate the tooth shade.

If the inlay is to restore a contour, or is of considerable size, I make a gutta percha model by filling the cavity with gutta percha and trimming it to the desired shape. Then I remove the model and build the ground porcelain to the same contour.

If the inlay is a small one, I usually bake it twice; once to biscuit the Close body and once to vitrify the coloring or enamel body.

If large, I biscuit the Close body, then barely fuse a layer of colored body and then vitrify the enamel body.

I believe that as soon as a satisfactory cement is discovered, the inlay will, to a large extent, supplant gold as a filling material.

ORIGINAL METHOD OF MAKING A MATRIX FOR INLAYS.

By Charles Channing Allen, D. D. S.,
Kansas City, Mo.

(Written for *The American Journal of Dental Science.*)

No baked inlay can be successful or satisfactory unless the matrix in which it is made be good. The making of a matrix has in the past proved one of the most difficult processes connected with inlay work. This of course obtains because of the extreme delicacy of the foil used for this purpose, whether it be platinum or gold.

It is not only difficult to form the matrix of this material perfectly but also difficult to remove it from the cavity and invest it, if investment be desired, without distortion. If the matrix could be filled with some more or less resisting material in the mouth, this material being swaged by pressure into the cavity, thereby making the foil confirm perfectly to the cavity and all its edges and then remove bodily for investment, the process would be simplified.

Many substances have been suggested for this purpose but the difficulty has always been to get rid of them after they have served their end. This difficulty has been found to be such that the benefit derived from their use has been largely minimized.

After considering and using all the materials that have been brought to my attention and that I could think of, it occurred to me to use gum camphor, which I find almost ideally fills the bill.

After the cavity has been outlined on the foil by the use of cotton, spunk, or other similar material, a small piece of gum camphor may be placed over the cavity and firmly pressed into position by the use of proper burnishers and instruments and it will be found to swage the foil perfectly to the cavity walls. This may be burnished down very much as though one intended to make a permanent filling of the gum camphor, you can thereby get a perfect edge all around your cavity.

After the camphor has been worked into position in this manner the matrix, camphor, and all may be removed in the usual way and invested as one may desire. If you use alcohol in your investment, simply set it afire and by the time the alcohol has burned up, the camphor will be found to have entirely disappeared, leaving no trace whatever of its former tenancy. This is, of course, the very thing desired.

If it is not desired to invest the matrix, simply set the camphor afire with a match or an alcohol flame and it will disappear as before. This method is especially useful where one desires to use pins, staples or other retaining devices which must be held in certain absolutely relative positions. This can be done with camphor and no question of error may arise.

In contour work and in shallow cavities some times the camphor will be found a little hard to work but skill in manipulation will very largely overcome this defect and the operator will find much satisfaction in the use of this material.

There is nothing about the camphor that is in any way offensive to the patient or that makes it undesirable to use about the mouth.

PORCELAIN INLAYS.

By H. E. Phillips, D. D. S., Canton, O.

(Written for *The American Journal of Dental Science.*)

The editor has asked that I "keep in mind that it is for beginners" I write, "giving some practical hints" on porcelain inlay work, seeming to ignore the fact that most of us are of the kindergarten class, only a few having attained anything akin to perfection. However, all along the way between the two stations are numerous toilers striving hard for results, and getting them, too.

But I am going one better and address the man who has not yet begun, though may be thinking seriously of doing so.

The most "practical hint" I can give to a dentist contemplating becoming a beginner is this: Spend a day or several, if possible, under the instruction of a porcelain worker who has acquired knowledge and skill and from him learn your A B C's. Then go to your own laboratory and go over the lesson again and again. In other words, take teeth that have been previously immersed in alcohol and drill cavities in every conceivable position in which you would consider a porcelain inlay practical, make a matrix and inlay for every one of them, trying every shade in your outfit.

Be as scrupulously particular as though the tooth was in the mouth of one of your best patients. Don't think of experimenting on your patients. It is not necessary as you can do all that in your laboratory with porcelain.

Take in all the clinics on the subject within your reach. No matter who the demonstrator, you can learn something worth while.

Following this course you can know more in a month than you could possibly learn in a year should you try to "pick it up" alone. Let me picture to you a single incident that, with a few variations, will represent the experience of a vast number of "beginners": Dr. X., of whom I speak, is more than ordinarily skillful as an operator and successful as a practitioner. After absorbing such information as he could get from the various dental journals he purchased an expensive furnace and all the other articles necessary and conducive to success and then informed me there would be "something doing" at his office in about forty-eight hours.

Result: After one year of misdirected effort, during which time he has been unable to set a single inlay that would satisfy a blind man, the outfit has been recently relegated to a top shelf in the laboratory and the doctor is disgusted with and does not believe in porcelain. A more patient man would have won out after much effort. Remember, porcelain inlay work requires more patience, skill and delicacy than anything the dentist is called on to do, hence, the fallacy of trying to make and place a creditable inlay without first learning something of the procedure from an expert. The preparation of the cavity is a phase of the subject that as a rule does not receive as much attention from the novice as it should. He is so anxious to get at the building of the inlay that all else is passed over. When he has met with a few failures in consequence he then begins to look to the foundation of his work. I cannot be too emphatic in my reference to shaping of the cavity, because it is really the most important factor conducive to success. You hear and read much of the color and shadow question and the making of the matrix, but as you progress with your laboratory experiments, thereby becoming familiar with the colors at your disposal, these features will not worry you so much when you come to do practical work. But your patience and skill will be taxed to their utmost very often when preparing a cavity, even after you have gotten well on. Again the color, the elimination of shadow and the making of the matrix are all dependent on the proper preparation of the cavity. When the "beginner" can successfully insert a porcelain inlay, he is repaid for all the expense of time and money spent in his effort to properly fit himself, for there is nothing so pleases your patient or so satisfying to the dentist from an aesthetic viewpoint as a well-made porcelain inlay.

SOME INLAY POINTS.

By Alexander Jameson, D. D. S.,
Indianapolis, Ind.

(Written for *The American Journal of Dental Science.*)

A Way to Provide Retention.

If you have an inlay where you feel that the bottom should be rough for retentive purposes proceed as follows: Mix your body or a small part of it rather thin and let it extend almost to the edges of the cavity form. I do not know a better way to describe the proper thickness than to say to put on rather a thick coat of thinly mixed body. Dry so rapidly in furnace or on a hot slab of fire clay that you cause bubbles throughout the mass.

Bake this porcelain more than you do any subsequent layer and bake the subsequent layers as you would any porcelain to prevent bubbles.

When your inlay is finished, a few touches on the bottom with a corundum or "gem" stone will show a large number of pits or bubbles in exactly the place you wish your cement to adhere.

Some Color Propositions.

I wish to speak of two things which we as porcelain workers do not think of enough.

One is imitation, the other the attempt to reproduce certain natural conditions.

The tooth is translucent, consequently all our high fusing bodies are made translucent in the vain hope that we are reproducing a quality much to be desired. We make an inlay and try it and it is beautiful; then we set it with cement and all things are changed, because in using cement or anything else we have been inconsistent with our idea of reproducing conditions.

Did you ever put in a large distal porcelain filling in one of the six anterior teeth involving both labial and lingual walls, getting the color exactly right, only to find after it was in position that Ames' oxyphosphate or copper would have made a more acceptable filling, for you could have saved time on it? Here again is where our translucency comes in and comes in so hard that it defeats us because the inside of the mouth is not a very light place and our filling is so translucent that it lets out the darkness, as it were. Now these are examples of attempts to reproduce nature and the usual result is about the same.

Taking up the other side of the proposition, let us see what we can do in the way of imitation.

Taking up the other side of the proposition, let us see what we can do in the way of imitation.

There is an old saying that "beauty is only skin deep," and that's my idea about an inlay. It can be yellow or green or black on its inside if it only looks good on the outside. Why are the low fusing bodies more natural in appearance than the high fusing ones in the positions I have mentioned above? Because they are more opaque. They do not reproduce conditions, they imitate them, and the imitation is better than the attempted reproduction. Now, granting that we have reached the limit in reproducing conditions, and granting that we have nothing further to hope for in that line, it looks reasonable to me that we will have to advance in the direction of imitation, and I will predict that we will have an opaque porcelain rather than a translucent one as the next step in the line of dental art; or it may be a set of opaque enamels of different colors, and when we do have these the shadow problem and the cement problem, as a variable factor in the color problem, will have been solved.

PORCELAIN ART IN DENTISTRY.

By Herbert L. Wheeler, D. D. S.,
New York, N. Y.

(Read before the New Haven Dental Association, at its first annual convention, New Haven, Conn., March 15, 1904.)

Porcelain art in the realm of operative dentistry probably began with the operation of Dr. A. J. Volck of Baltimore, which consisted of grinding a piece of already baked porcelain to approximately fit the cavity, and setting it as an inlay by packing gold around between the porcelain and the cavity margins. This method is first described by him in the *American Journal of Dental Science* for July, 1857, wherein he credits the suggestion to Professor Maynard of Washington.

This plan has been employed, in cases where the operator has had the skill and patience to grind a piece of porcelain to an accurate fit, down to the present time, though oxyphosphate cement has been substituted for the gold in fastening the inlay.

I have seen, within two years, a beautiful specimen of this work, in which a broken tip of a central incisor had been restored by Dr. J. Morgan Howe, twenty or more years ago, and the porcelain and its fastenings were still in perfect condition. This tip was made from an Ash & Sons tooth. One advantage in using porcelain already baked is that in all probability it has been more scientifically handled and annealed by the expert workman employed by the manufacturer than modern inlays are by the average dentist; hence it is likely to be of superior texture and strength, and, if accurately fitted, will undoubtedly do as good or better service than many of the inlays baked by inexperienced men in the profession today. Its great drawbacks are difficulty of getting a perfect fit and the length of time required for the operation.

The present method of making porcelain inlays to fit the cavity by means of fusing porcelain, glass, etc., in platinum or gold matrices which have been previously made to fit the cavity by pressure and burnishing, was originated by Dr. Wm. Rollins of Boston, and first described by him in a paper read before the Society of Oral Science in June, 1880. Dr. Rollins was also the first to use gas furnaces for baking porcelain.

INGREDIENTS OF PORCELAIN BODIES.

Chemically speaking, the high and low-fusing materials are the same, the difference between them being one of proportions in the ingredients rather than of dissimilarity in the materials, except that all of the low-fusing bodies contain artificial flux, which greatly increases the soluble elements in the body. The probabilities are that the Jenkins low-fusing body has been changed several times, but despite this fact it is, I think, a glass, though it has been claimed that it is made by the ingenious mixture of several feldspars. That it is composed,—if this be so,—of different feldspars whose chemical formulæ may vary slightly because of different proportions of potassium or sodium, does not change the fact that the entire body is fusible, save perhaps a very small proportion of kaolin, which, so far as I can see, does not add to the strength or quality of the material, and greatly increases its shrinking capacity. It is not impossible that a body made in this way, though it be low-fusing and a glass rather than a true porcelain, may, if properly annealed in the cooling process, make a very strong substance. Its weakest point lies in the possibility of its being eventually affected by the fluids of the mouth, owing to the large amount of soluble salts, such as potassium, sodium, or magnesium, used to lower the fuing-point.

The high-fusing materials differ from this in that they contain a greater or less proportion of silica, which is infusible under ordinary circumstances, but may become fusible at a high heat, through grinding too fine or through adding too large a proportion of the highly alkaline constituents.

All of the high-fusing bodies, so far as I have observed, are true porcelains, containing a sufficient quantity of silica, along with the feldspar and kaolin in their make-up, to give stability and strength to the material.

The greater the proportion of silica, so long as there is enough feldspar to bind the particles closely together, the higher the fusing-point, and if proper care be used in cooling, the greater the strength of the material. Both for the purpose of producing proper form in lost tooth-structure and for obtaining strength, I consider the high-fusing material much superior to the low-fusing.

I do not agree with some writers who favor high-fusing material, that the better breaking up of the rays of light by the high-fusing body in all cases produces a more natural-looking material.

The higher-fusing the body used, the more stable the colors and the less danger of bubbling. These advantages are due to the lessened amount of alkaline material contained in the high-fusing bodies.

STRENGTH OF INLAY PORCELAINS.

From some practical experiments which I have made, with the expenditure of much time and patience, I am inclined to the belief that the strength of the high-fusing as well as that of the low-fusing material is somewhat affected by the quality of the feldspar used in the flux, and it has occurred to me that possibly the chemical changes produced when the heat is carried to a point where the color disappears may also affect the strength of the material. A feldspar is a silicate of alumina, with silicates of other bases, either soda, potash, or calcium. These soluble alkaline portions vary considerably in different feldspathic rocks.

I have come to these conclusions from observing the tensile strength of the different inlay materials upon the market. In order to obtain the following results I made blocks of the different inlay materials about one-half inch long, three-eighths inch wide, and three-sixteenths inch thick, putting these in a mcahine for testing the strength of teeth.

The Jenkins material will stand an average strain of 32½ lbs., while it will go a little higher—to 37½ lbs.—if the material be baked so that it rounds almost to a globule and the color is lost to some extent. Ash & Sons' low-fusing stood a strain of 30½ lbs., and their high-fusing 45 lbs., this high average being brought about by one remarkable block which stood a strain of 60½ lbs. The Consolidated inlay material, which was originally made by Mr. Whiteley, now with the Dentists' Supply Co., averages 39 lbs., while the body now made by Mr. Whiteley averages 41 lbs., and the Brewster high-fusing enamel, in which the silica is apparently ground to extreme fineness, averages 19 lbs. The S. S. White high-fusing porcelain averages 33½ lbs. Parker's body, which is something like the following formula—Spar 4 oz, silex 3 oz, kaolin 1 dwt.—would not break, the platinum pins breaking instead. These tests, which were very carefully made by myself at different times, seem to indicate as a whole that the high-fusing, both for strength and for the obtaining of satisfactory colorings, are vastly superior to the low-fusing bodies.

FUSING-POINTS OF PORCELAINS.

Upon going over the fusing-points given us by Mr. Hammond, I decided to make some tests with the pyrometer for myself. In these I used colored glasses in order to observe the operation of baking more closely and accurately. This plan protects the eyes from the glare of the furnace.

I obtained the following results, some of which vary from those given by Mr. Hammond. The degrees are given in the Fahrenheit scale:

Jenkins' enamel,	1552° Fahr.
Ash & Sons' low-fusing,	1580° "
Ash & Sons' high-fusing,	2084° "
Consolidated,	2084° "
Whiteley's,	2228° "
Brewster's,	2084° "
The S. S. White Co.'s,	2228° "
Parker's,	2588° "

A body which Mr. Whiteley sent for me to try fused at 2264°, and held its color the best of anything in the list except Parker's. This also stood, in the tensile strength tests, an average strain of 48 lbs., and one piece refused to break, the pins breaking first.

In the matter of shrinkage, the Parker body contracted the least and showed the least tendency to warp. The shrinkage of the S. S. White and the Whiteley bodies was nearly the same, the former shrinking a little the more. This may be because of starch or gum tragacanth being put in the S. S. White body to make it work easier.

The Consolidated, the Ash & Sons' high-fusing, and Brewster's were about the same, the Consolidated shrinking a little less than the other two. Next came Ash & Sons' low-fusing, and the greatest shrinker of all was Jenkins' enamel; this also showed the greatest tendency to change shape by warping or drawing up at the ends. It would seem that the time required to work the Jenkins' enamel successfully must be greater than any of the other enamels or porcelains, though there is doubtless some time gained by the furnace not being so highly heated to cause fusing.

The Ash & Sons' low-fusing body seems to be much nearer a true porcelain than the Jenkins' enamel. Their high-fusing body and that made by Brewster have some similar characteristics. I apprehend that the infusible silica in both these bodies is very finely ground, though the Ash material seems to be able to withstand twice the strain that Brewster's does.

These results seem to indicate that for most cases of inlay work all the materials on the market may be of sufficient strength, and that with some slight modifications the higher the fusing-point of a body the more certainty of its color withstanding the heat of baking, and the greater possibilities of artistic work in those difficult cases where it is necessary to produce a concavo-convex surface in order to carry out a resemblance to the natural teeth.

Generally speaking, the higher the fusing-point the greater the strength, but this is materially affected by the care with which the heated porcelain is protected from changes of temperature, such as currents of air, during the cooling process, and by the rapidity with which this process is carried on.

No porcelain or glass material can be taken from a heated furnace without greatly lessening its toughness and edge strength. Still there remains this undisputed fact: The lower you get your fusing-point, the nearer you come to a glass compound rather than porcelain, and the greater the probability of the surface of the enamel being unfavorably affected by the fluids of the mouth.

Thus far the Jenkins' enamel is the only glass-like material that is still much in vogue, and from cases which I have seen in which the color has changed and the surface become roughened after having been awhile in the mouth, I believe that due caution is not being exercised by our profession in adopting a low-fusing material before it has been demonstrated by the test of time that it is absolutely insoluble in the fluids of the mouth. It seems to me that there is no good reason why the inlay material furnished by the manufacturers should not be fully as strong and keep its color as well as the artificial teeth they produce.

AN AID IN SECURING DENSITY.

It was suggested by Dr. Littig of New York, in discussing a paper read before the New York Institute of Stomatology by Dr. Robert Moffatt last October, and published in the January *International Dental Journal*, that manufactured teeth made in molds were stronger than carved teeth because of pressure used in bringing the molds together.

By experiment I found that by a gentle tapping of the instrument which held the matrix on which was placed the porcelain body by another instrument, and a careful absorption of the moisture by blotting paper as it comes to the surface, until no more moisture can be extracted, a much greater density is secured, and consequently less shrinkage and greater strength than when the minute particles are forced into place by pressure; thus demonstrating that, given the same material as is used for artificial teeth, a greater density and strength can be secured, the conditions of baking being the same, by bringing the particles of the porcelain body into the closest relation with each other by gentle tapping rather than pressure.

I would suggest that if you wish to do an sepecially strong piece of work that may be more lasting and of better shade, this might be done by securing a tooth of the required color, pulverizing it in a mortar, and baking it as an inlay. This will avoid dependence upon any particular make of body, and will doubtless prove as effective a way of obtaining the desired shade as the attempted blending of the various colors sold in an inlay set.

Discussion.

Dr. W. A. Capon, Philadelphia—Tensile strength I will touch on for the simple reason that the greatest test of any porcelain is in actual use in the mouth. These tests made out of the mouth pulling the pins out of teeth etc., do not amount to much, as it is applying the force in a manner that is never experienced in the mouth. It is a pulling force, while in the mouth the strain is in a pushing, grinding direction. If someone would invent a device by which the force could be applied as in the mouth, these tests might amount to something. I care not whether the tensile strength of porcelain be twenty-five, thirty, or thirty-eight pounds, if the lowest will stand the strain in the mouth.

With regard to the fusing-point of porcelain, it is not the fact of its fusing at so very high or low a temperature that gives it the necessary strength. Touching that point, I think this was ascertained by Mr. Hammond and myself in my own laboratory, and the results are not astray to any great extent—they may be two or three degrees off, but the man has to be a very accurate workman that will take a material with a fusing-point of 2400° and get exactly the same result as somebody else. For instance, I make the fusing-point 2400° in my furnace, and he makes it 2380° in his; that practically makes no difference in the temperature. When you get nearer the fusing-point of gold it does make a difference, however, as that difference in the fusing-point would destroy your matrix. In the low-fusing bodies, if you allow the heat to go twenty points beyond the fusing-point, you are likely to affect the coloring matter, and that is the latitude of the low-fusing bodies. In the high-fusing it would take from forty to fifty degrees greater heat before affecting the coloring matter, therefore you have a greater latitude of variance in the high than in the low-fusing bodies. If you are using the low-fusing bodies, the heat has to be trained just exactly right, or you will get a change in the color. But the loss of shade is very easily overcome by experience.

I take exception to the essayist saying that the texture of porcelain is of equal degree of density when tapped as when subjected to pressure, and for proof of that you can take any material you may wish to, and do as he says, and take the same material and subject it to pressure; then brek the two materials, and you will find that the texture of these materials is different, and that it cannot be possible for the particles to lie as closely together as when forced together by pressure. Another proof is to take an ordinary pressed tooth and grind the surface and it will show a very close texture, practically smooth. With four-fifths of the porcelain bodies, after baking and grinding in this way, you do not have an even surface. This is a point that is practical, and one reason that I speak of it is because that in grinding the porcelain after it is in the mouth you have not the same opportunity of getting a smooth surface as in the pressed tooth.

With regard to the extremely high fusing-points I do not think there is any necessity of going to extreme temperatures to get the stronger material, and I think anywhere in the neighborhood of 2200° or 2300° is sufficient for our use. For an illustration of that, several years ago we had nothing but the Close's body to deal with. A few weeks ago I had occasion to renew a piece of bridge work made by myself a number of years ago. It was a jacket crown for one abutment and a porcelain-covered platinum crown for the other. I made the extension by running platinum wires from the jacket crown to the other abutment, building porcelain on this, and finally the whole mass was fused together. After years of constant use it had dipped a little between the abutments. I looked up my books, and found that this piece of work had been in for eleven years. I worked for fifteen minutes to get that jacket crown off, and the porcelain came off piecemeal; the last thing to come off was the veneer, but the porcelain in that was just as strong as it could be. That was Close's continuous-gum body, and was fued at 2300°. I do not want anything higher than that; it is not required.

With regard to the question of shadows, I think the result in that line is according to skill. I care not whether it is an old practitioner or a young man just entering the work, do not expect you are going to get the best results at once. If you are skilful, and have a tendency toward the artistic, porcelain work will come easy to you. There are plenty of dentists who can never become porcelain workers, simply because they are not adapted to the work. It is just the same with this work as it would be if we all were to try to reproduce a sketch now. There would be a few who could probably do it readily, but the great majority could not do it, yet most could acquire the skill. Just the same with this work; some can acquire the skill, and some cannot. As a proof of how difficult it is for some men to match colors, you see men go into a dental depot and when a tray of teeth is set before them they are thoroughly confused, and have to ask the clerk to select the proper shades for them. With regard to opacity, that is a bugbear to a great extent, because opacity is not in reality what we are after.

THE FOURTH INTERNATIONAL DENTAL CONGRESS BANQUET

Will be held on September, the first, nineteen hundred and four, at eight P. M., in the Coliseum, adjoining the Congress Hall. The price per plate is three dollars. It is requested that all who expect to attend send their names and money to Dr. A. H. Fuller, P. O. Lock-box 604, St. Louis, Missouri, at once and not later than August the twentieth. Arrangements to pay can be made with Dr. A. H. Fuller at the time of registration, provided notice is given before August the twentieth.

G. A. Bowman,
A. H. Fuller,
Adam Flickinger,
Banquet Committee.

The only Guaranteed non-breakable broach now used by the profession.

THE ACME

Our claim that the Acme is the finest and toughest nerve extractor has not yet been disputed. Remember it is not a reamer, but does the work where the ordinary broach does not reach, viz., in a small or tortuous canal clinging to the side of the walls, and extracting the nerve without any danger of breaking the broach. We are so convinced that they will prove satisfactory that you can return them and have your money refunded. **GET THE ACME.** Price $1.00 per dozen or $9.00 per gross. For sale by all dental depots or the sole manufacturers.

We also manufacture the Rex—a broach similar to the one they charge $2.50 per doz. We will also guarantee this to be equal to it at $1.50. Simply give us a chance to show you on two kinds of nerve extractors—The Acme and Rex—and we are certain to have you for our regular customer.

We take Scrap Gold and Filings in exchange allowing highest market prices.

St. Louis Refining Co.
118 East 116 Street, New York

Brewster's High-Fusing Porcelain

The Porcelain Used by the Leading Porcelain Workers of the United States and Canada.

Brewster's High-Fusing Porcelain

WAS adopted by the profession in 1897, and is being universally employed. It consists of two bodies: a "Foundation Body" and an "Enamel Body."

The satisfaction this Porcelain has given, and the unqualified endorsement it continues to receive, is in itself a guarantee—to those contemplating the use of High-fusing Porcelain—that nothing better is obtainable.

* * *

Brewster's Low-Fusing Porcelain

To enable those who have not already done so to try gold for matrices, we have, at request, placed on the market a "**Gold Matrix Porcelain," which may be fused in any ordinary furnace,** either electric or gasoline. It differs in composition from any of the low-fusing bodies at present before the profession. It has many of the properties of our High-fusing Porcelain, and may be handled much in the same way. It fuses at about the melting point of 14k. gold solder, but may be carried considerably higher without loss of form or color. It also possesses great toughness and translucency.

A sample bottle will be sent free, on receipt of professional card, to any one wishing to test it. It may be had in 10 shades.

Our Products are Supplied by Dealers Throughout the World.

The Brewster Dental Company, 2544 Princeton Ave., CHICAGO, U. S. A.

BE DONE WITH EXPERIMENTING.

USE OUR

Paragon Anti Glaze Strips and Disks

n all Grits and Widths to suit Operator and in following Brands:

Samples Free for the Asking.

Paragons, best 2100 linen waterproof, 50c a box, $4.50 a dozen.

Badgers, equal to any common strip at any price, 30c a box, $3.00 a dozen.

Mercurialized Amalgams, especially for Amalgam fillings, 50c a box.

Anti Glaze Disks, either extra thin or ordinary weight, 10c; $1.00 a dozen.

If your dealer has not our goods in stock as yet order direct.
Be sure to ask for our pamphlet on strip and disk manufacture.

PARAGON DENTAL MANFG. CO.,

Originators and Sole Manufacturers of Anti Glaze Strips and Disks. **RACINE, WIS.**

"It didn't hurt a bit!"

WHY?

His Dentist gave him

"Antikamnia & Codeine Tablets"

When to Use Them

FIRST

To ease the nagging and shooting pains while operating; to quiet the nerves, and prevent the headaches and nausea which frequently follow operations, administer one Antikamnia & Codeine Tablet every hour. Give one before beginning operation

SECOND

One Antikamnia & Codeine Tablet given before and another one after extracting a tooth, will stop pain and allay irritability

THIRD

When a painful cavity exists, or a nerve or root is exposed, administer internally one or two Antikamnia & Codeine Tablets and fill the cavity with the powdered tablet, or apply it freely about the gums

FOURTH

For toothache, earache and facial neuralgia, administer one Antikamnia & Codeine Tablet every two hours until relieved

FOR SAMPLES AND LITERATURE, ADDRESS

The Antikamnia Chemical Company St. Louis, Mo., U. S. A.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA A. LAWRENCE TRADE MARK **AMALGAM.**

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,—2 oz. $5.50,—4 oz. $10,—10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by
AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.
FOR SALE AT THE DENTAL DEPOTS.

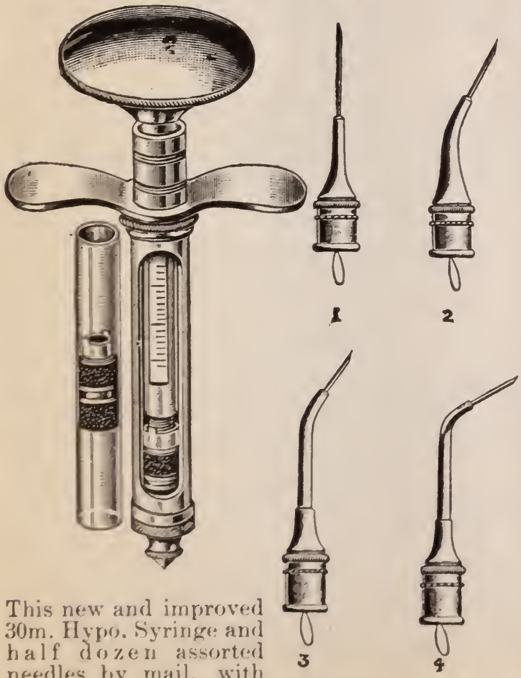
BURS : BURS : BURS : BURS

Sample order of two dozen for **$1.25.** First-class Burs—Stubs Steel, Machine Cut, Perfect Temper. Will give rates by gross or half gross with two-dozen order. Sample on request. Order to-day.

J. J. REED, Beloit, Wis.

BURS - BURS - BURS - BURS

NEW



This new and improved 30m. Hypo. Syringe and half dozen assorted needles by mail, with our complete catalogue for $1.00.

Physicians Supply Co.
Dept. A. Passaic, N. J.

Familiarity Brings Content.

THE BEST AND SAFEST

USE

SOLD ROUND THE WORLD

Manufactured only by

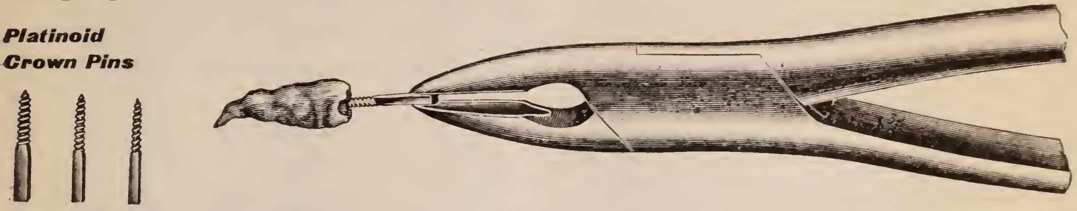
The Hisey Dental Mfg. Co.

ST. LOUIS, U. S. A.

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary.*



Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

Are You Hunting?

For a Good Laboratory, if so, take a shot at us and you'll never miss

For we are exact in constructing your mechanical work, because Drs. Christopher & Golbeck are practical workmen of wide reputation and endorsed by prominent members of the profession and your work is just as safe with us and receives the same amount of care as it would if you had it in your own laboratory.

IS YOUR BUSINESS DULL? LET US BOOM IT FOR YOU

Remember your prosthetic work is your representative and talks to the people, when you place your laboratory work with us, it is in the hands of those who are personally interested in its welfare and we take pride in each and every case produced.

Is it not Satisfaction to see Perfect Results?

And every day we receive letters thanking us for our prompt service and praising our work.
Write for our up-to-date Wooden Mailing Boxes. Sent FREE upon application.

MONARCH DENTAL LABORATORY CO.,

39 STATE STREET, CHICAGO, ILL.

DRS. CHRISTOPHER & GOLBECK, Prosthetic Specialists

You Want the Best

Dr. Gilmore's
EXCEL LOCAL ANAESTHETIC

For absolute painless extraction. Safest and best. Thoroughly Antiseptic.

Price 2 oz. $1.50, 6 oz. $3.60, 10 oz $5.00

This Anaesthetic is acknowledged by every Dentist who has tried it to be superior to all others on the market.!

ABCESQUE

A positive and permanent cure for all abscesses and a fine root canal filler

In $1.00 and $2.00 packages.

EXCEL GOLD STARTER

For starting gold fillings. Saves time, pain and strain on the eyes.

In $1.00 and $2.00 packages.

EXCEL DEVITALIZING PASTE

For painless devitalizing of nerves.

Price $1.00

ANTI-STRANGLE

To prevent strangling when taking impressions. Insures a perfect impression.

Price $1.00

LOCALINE

Is a strictly local anaesthetic and applied to the gums on cotton.

Price 1 oz. $1.00, 4 bottles $3.00, 8 bottles $5.00

PULPINE

Successfully saves inflamed and aching pulps.

Price $1.00; Powder or Liquid, 50c each

OBTUNDINE

Successfully obtunds sensitive dentine at once.

Price $1.00

The greatest advertisement a dentist can have is to assure his patients ease and comfort in the dental chair; price is no object and they will go hundreds of miles to have them do their work.

The experience of thousands of dentists who are using our preparations is that they are the best they ever used for what they are made to do.

READ ☞ As our goods stand on their merits we will send any one of our preparations in full size package to any dentist on receipt of 50 cts. to cover postage and packing or all of them on receipt of 50 cts. for each one sent for, or we will send them prepaid on approval for the price given; considering this a better method of advertising than in the Dental Journals or sampling, knowing that it will make the dentist and his friends customers ever after.

If your dealer does not keep them, send to us for them and send us his name.

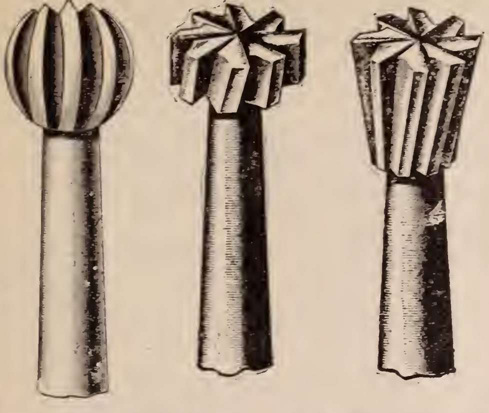
We refer you to any dental depot in N. Y. State as to our integrity and fair dealing.

MANUFACTURED BY

EXCEL CHEMICAL COMPANY,
1559 BROADWAY, BROOKLYN, N. Y., U. S. A.

SOLD BY LEADING DENTAL DEPOTS

SOMETHING NEW.



**Patented in Great Britain,
Germany and the
United States.**

C. H. PINCHES,

Sole American Agent.

DID YOU EVER STOP TO CONSIDER

that the bur you are at present using is weakest where it should be strongest? No matter how good the steel is, there is not enough body at the edges to withstand the strain of cutting through hard teeth and at the same time keeping a sharp edge for a reasonable length of tim.

The New K. Witzel bur will cut quicker and with less pain to the patient than any bur on the market, and last three times as long. They are made from the best grades of steel procurable and are cut perfectly, with no angles to hold the ground tooth matter. They cost you no more than a good bur of the ordinary cut. They can be resharpened y the dentist. They don't jump on the edge of the cavity.

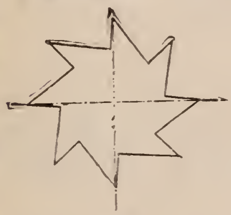


FIG. 1

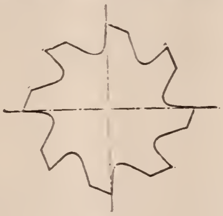


FIG. 2

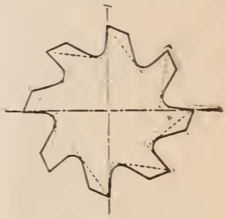


FIG. 3

No. 1 shows a cross sectional view of the ordinary bur, with its weak points and sharp angles which rapidly fill and cause the bur to gum up when in use.

No. 2 is a sectional view of the K. Witzel bur, with its triple lasting power on account of the chisel edges, and no places for the accumulation of tooth matter.

No. 3 gives you an idea of the relative strength of the two burs.

A trial of the K. Witzel bur will convince you that we have not exaggerated their superiority over all others.

In order to introduce these burs on the American market we will make the following prices:

Round Wheel and Inverted Cone.

Nos. 000 to 8, per doz	$1.50	Nos. 13 to 16, per doz	$2.75
Nos. 9 to 12, " "	2 25	Nos. 17 to 20, " "	3.25

QUANTITY RATES ON APPLICATION.

PINCHES DENTAL DEPOT,

TELEPHONE 3221 MORNING

143 West 125th Street, - - - New York City, U. S. A.

Beware of Imitations. None Genuine Without Name K. Witzel on Shank.

Any Dental Depot can Supply them to you.

DeBow's Nerve Capping and Root Canal Filling

Used in Capping Live or Exposed Nerves

This nerve capping is one of the greatest boon for the dentist ever discovered. It enables the operator to handle with ease all cases of exposed or sensitive nerves. It is just what its name implies, a paste nerve capping to cover the nerve preparatory to filling. It does not kill the nerve but leaves it in a good healthy condition. Why kill nerves when you can cap them with better results. One bottle will cap about two hundred nerves. Try a bottle and you will have no further trouble with exposed nerves, or no more nerves to kill.

TESTIMONIAL.

I find the DeBow Nerve Capping will do all you claim for it. I consider it the finest thing in my cabinet and would not be without it. Yours respectfully,

F. R. Deming, D.D.S., 207-8 Bamlet Bldg., Detroit, Mich.

Ask your dealer for it, or price by mail $1.00, large sized bottle.

DR. S. W. DeBOW, DENTIST
LINDENVILLE, O.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Cavity Cap Discs, and who also carry a general line of Dental Goods at popular prices.

Price of subscription, per annum, 50 cents; foreign countries, 75 cents. Lowest advertising rates of any journal. Write for prices. Address,

THE TEAGUE SUPPLY CO.,
222 JACKSON ST. AUGUSTA, GA.

ADRIAN S. RUTHERFORD

Manufacturer of and Dealer in Dental Supplies

289 PLEASANT AVE., NEW YORK CITY

When at the Dental convention at St. Louis do not fail to see our exhibit. It will include a line of prophylactic instruments, scalers and trimmers, made from patterns furnished exclusively to Mr. Rutherford by some of the advanced workers using such instruments. Mr. Rutherford expects to give demonstrations for one hour each day on different methods of crown work, introducing the latest improvements made by himself and others. Free samples of our goods will be distributed.

Dr. Abraham's
Oxyphosphate of Zinc Cement

Made in Germany

5 COLORS White Yellow Light Yellow Grey Light Grey

PRICES		QUANTITATIVE PRICES	
Per Box,	*$1.50*	*6 Boxes,*	*$7.50*
Extra Liquid,	*75c*	*12 Boxes,*	*13.50*

GUSTAV SCHARMANN

Sole Importer

1181-83 BROADWAY, - - NEW YORK, N. Y.

MORE CASH FOR OLD GOLD

We Will Give You More in Cash

for your Gold and Platinum scraps and filings than you can get for it in trade.

We have been smelting and refining for twenty-two years, do a very large business and have the most improved and economical facilities for handling Old Gold, Platinum, bench sweeps, etc.

You Take No Risk

We send draft on receipt of every shipment, small or large, and hold same in its exact condition until we hear whether the amount is up to your expectations; if not, we return it, express prepaid. Could any proposition be fairer?

We are sure that if you send one shipment you will send them often.

You can also send us the accumulation of rubbish around your work-bench if you think it contains any gold, and we will give you its value in cash after deducting our small refining charges.

TWO LARGE REFINERIES

WENDELL & CO.

93-95-97 William St., NEW YORK
57 Washington St., CHICAGO

EXTRA PLIABLE
BURNISH GOLD CYLINDERS

1-16 oz., $2.25; 1-2 oz., $17; 1 oz., $34.

Pure Gold Cylinders
Gold Ropes
1-8 oz., $4; 1-2 oz., $15; 1 oz., $29.

Fine Gold Foil
1-8 oz., $3.50; 1 oz., $27.

Our Extra Pliable Burnish Gold Cylinders have proved a great success. They work almost with the facility of plastic gold, are very valuable in frail teeth, being very cohesive yet soft and pliable, requiring less pressure to pack densely. Better everywhere than any other form of gold.

Morgan, Hastings & Co.,

817-821 Filbert Street, PHILADELPHIA.

WM. HAHN
220 WASHINGTON STREET, CHICAGO
Manufacturer and Repairer of
Dental Instruments and Specialties
BROACHES

Barbed ½ doz. 50c.

Progressive ½ doz. 75c.

The Old Reliable—all kinds and sizes. The best that skill and study can produce. Try the "Progressive" Screw Cut. (Screw-Cut) for small and difficult canals.

Superior Dental Finishing Strips

Registered August 12, 1902, No. 9364

CARBORUNDUM—Made in three grits; Coarse, Medium, Fine, and in three widths: Broad, Medium, Narrow, or Assorted, as desired, seven inches long.

DIAMOND—Made in one grit only, and is for finishing and putting the final polish on the filling.

35 cts. per box of one gross or three boxes $1.00

A Free Sample for a postal card

Superior Dental Strip Co.
WATERLOO, N. Y.

Good Stationery

Is Good Advertising

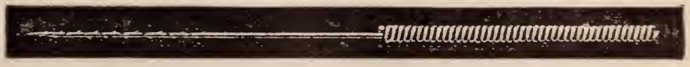
BUSINESS AND SOCIAL
STATIONERY AND CARDS
WEDDING AND BUSINESS
INVITATIONS AND ANNOUNCEMENTS

Samples and Quotations willingly furnished

The American Embossing Co.,
10-16 LOCK ST., BUFFALO, N. Y.

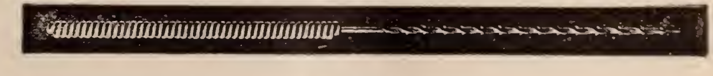
There is ONLY ONE

"DAYTON BROACH"
(INDESTRUCTIBLE.)



Straight.

They Can Not Break.



Spiral.

They Are Efficient.

Tapered.

Why Use Any Other?

Price, All Styles, $1.00 Per Doz.

Manufactured by

Dayton Dental Supply Co.,
S. W. Cor. 5th and Jefferson Sts., Dayton, O.

When a comparatively new material can SUPERSEDE the old standbys in the practice of EXPERIENCED DENTISTS, the argument resolves itself into a single word,

MERIT

This is exactly what RAMESITE CEMENT is doing.

The hundreds of dentists who have tried RAMESITE CEMENT, thus far, have duplicated and continue to duplicate their orders.

After you have tried all other cements
Try Ramesite

After all other cements have failed
Try Ramesite

If you have a piece of bridge work that persists in coming off
Try Ramesite

If you have a Logan or Richmond crown to set
Try Ramesite

If you have to fill a broken down molar—nothing but the walls of enamel left
Try Ramesite

If you have made a nice porcelain inlay and wish it to remain "A thing of beauty and a joy forever"
Try Ramesite

If you wish a durable filling
Try Ramesite

In filling children's teeth
Try Ramesite

In a wet cavity
Try Ramesite

If you are careless in the manipulation of your cement DON'T
Try Ramesite

RAMESITE is not a Careless Man's Cement.

Price per Package of Two Colors, $1.50. Write for Free Sample Package.

Manufactured . . . by H. G. KNAPP,

219 SIXTH STREET, - - - PITTSBURG, PA.

CHAUNCEY A. FLOWER'S

New Process Gold Cylinders

Is Guaranteed to be the best all-round Dental Gold in the world ❧ ❧ ❧

Five reasons why YOU should give it a trial

First—Because it is the purest Gold on the market.

Second—Because it is the easiest working Gold.

Third—Because it is perfectly adapted for any kind of filling.

Fourth—Because it requires NO ANNEALING.

Fifth—Because it requires no special kind of Instruments.

It is soft and cohesive, but when properly condensed contours perfectly, finishes hard and takes on the finest polish.

In fact is just what all good Dentists are looking for.

The best Quality and Easy Working combined.

Gold Bullion White Alloy

Manufactured by J. B. Z. Roberts for the past fourteen years, has never been extensively advertised, yet it is now being used by more than FIVE THOUSAND dentists.

This Large and Steadily Increasing Sale has been Created by the Merit of the Alloy

GOLD BULLION ALLOY has Edge Strength, Natural Color and Durability unsurpassed by any Alloy on the market.

It does not Discolor; does not Shrink; does not Expand; does not Crumble.

It amalgamates quickly and can be polished at a single sitting. It is positively Free from Grit. It is guaranteed — you may return any portion of an order and we will refund your money promptly for the same.

One Ounce	$2.00	**Ten Ounces**	$15.00
Three Ounces	5.00	**Twenty Ounces**	25.00
Six Ounces	10.00		

A Special Proposition—On the first order we will sell you any quantity at **One Dollar** per Ounce, cash with the order, and we will refund your money for all you return.

ROBERTS & FOX,

1202 WALNUT ST., KANSAS CITY, MO.

I have used J. B. Z. Roberts' Gold Bullion Alloy for the past eight years and take pleasure in recommending it to the Dental profession as being the best in every particular that I have ever used.

Wm. Gird Beecroft, D.D.S.

Can Be Tied In a Knot

CAN NOT BREAK

"MILES"

BROACHES

75c. (Patented) $1.00

PATENTED

Price per set of Three, 50c.

The Miles Steel & Tool Co.,

Middletown, Ohio, U. S. A.

Dr. J. C. Graft's New Flexible Singerpore Disks

in Emery and Carborundum, are particularly useful for trimming natural teeth and roots for crown work, for grinding porcelain crowns, inlays, enlarging spaces between teeth, etc. These disks are very thin, rapid cutting, and flexible.

Price per dozen, 25 cents

Terraplastica—A moulding compound—for taking impressions, casting metal dies, for rubber work—for investing gold work—absolutely has no superior.

Other Specialties—Perfect Impresion Varnish—Superior Base Plate—Improved Dental Plaster—Bridge Repairing Pliers—are essential adjuncts to every dental laboratory. Send for our Booklet.

TERRAPLASTICA MFG. CO.

5 W. PARK ST., NEWARK, N. J.

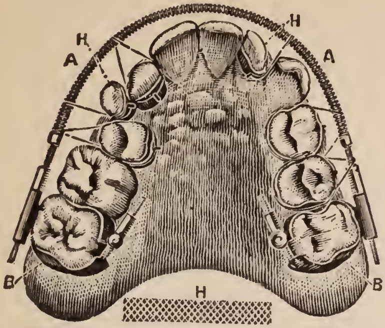
The J. E. Canning

Improved Regulating

AND

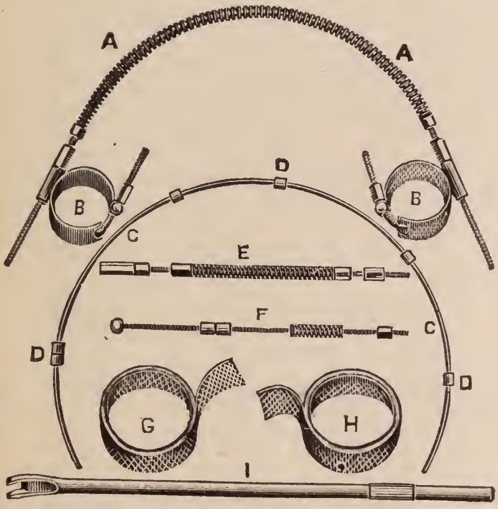
Retaining Appliance

Parts "A-B-H-G" are used in this case.
Price, including wrench, $3.00



The Arch in above cut stands further from the teeth than in an actual case. This is done to better show the Arch and Ligatures.

This cut shows the combination most used, not only for enlarging the Arch, but for individual tooth movement. The portion of the Arch which surrounds the anterior teeth is fitted with a **Removable Spiral Jacket,** which retains ligatures at any angle from the moving tooth. The Arch can be used with or without this Jacket as the case may require.



Price $5.00

PRICE OF PARTS:

A	Expansion Arch	80c.
B	Adjustable Clamp Bands, each	80c.
C	Retaining Wire	30c.
D	Retaining Tubes (6)	30c.
E	Elastic Pressure Jack Screw	80c.
F	Elastic Tension Traction Screw	80c.
G	Indented Band Material, .004	25c.
H	Indented Band Material, .003	25c.
I	Wrench	15c.

The Improved Jack and Traction Screws, as seen in the complete set, exert a **Constant, Uniform** and **Elastic** pressure against the moving tooth, and when once adjusted, positively need no further attention. The nuts all remain **Stationary,** the spring follows up **Automatically** the moving tooth and also acts as a **Positive Nut Lock.**
All Band Material is **Rough** or **Indented** and will never slip from the cement.
Booklet containing full instructions for attachment comes with all parts.
Appliances adjusted to models.

ASK YOUR DEALER OR WRITE TO

J. E. CANNING, P. O. Box 869, Denver, Colo.

Established 1848.

Astringent,
Antiseptic,
Alkaline,

Liquid,
Powder,
Paste.

SOZODONT

OWING to diverse conditions and tastes, different classes of patients require different cleansing and prophylactic agents for the oral cavity. Some require a mouth wash (with or without detergent properties): others a powder (which should be free from harsh grit); while a third class need that which is fast becoming the most efficient and economical—a Paste.

The SOZODONT preparations cover the whole field. They are not only efficient but delightfully pleasant as well, thus insuring faithful use.

Information and samples cheerfully furnished.

HALL & RUCKEL,
NEW YORK CITY.

THIRD SERIES
VOLUME XXXV
THE OLDEST DENTAL MAGAZINE IN THE WORLD
AUGUST 1904
NUMBER 8

THE AMERICAN JOURNAL OF DENTAL SCIENCE

ESTABLISHED IN 1839

AN INDEPENDENT DENTAL MAGAZINE PUBLISHED BY DENTISTS FOR DENTISTS.

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D.D.S. MADISON, WIS. U.S.A.

ARE YOU A SUBSCRIBER?

This month we are mailing a large number of sample copies for the purpose of advertising the magazine and securing new subscribers.

When you receive this copy we ask that you kindly look it over, and consider the following points before deciding as to subscribing:

It is a practical magazine—the tendency being to publish short, snappy papers on practical subjects.

Each month fully three-fourths of the matter published is original—papers written expressly for this magazine.

It is published by dentists—and is in every sense independent—and being so, it depends for its existence upon the loyalty with which it is supported by the dental profession.

SUBSCRIBE NOW

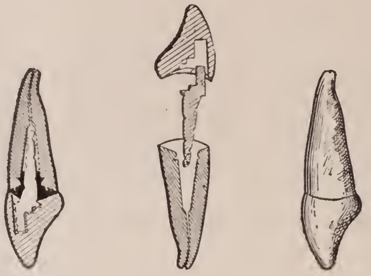
It will be sent from now to the end of 1905 for one dollar.

Please Remember When you are subscribing for magazines that we take subscriptions to all dental magazines at club rates and that you can save money by subscribing through us. Drop us a line stating the magazines you wish to take and we will quote you our rates.

WM. GIRD BEECROFT, D. D. S.
MADISON, WIS., U. S. A.

The Whiteside Crown

(**Patented March 17, 1903, February 9, 1904**)

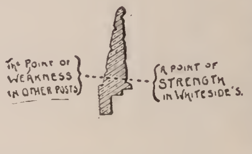


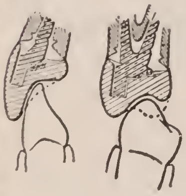
A PERFECT TOOTH CROWN

Strongest, - Easiest to Adapt,
Widest Range of Adaptability

Every mortise in every WHITESIDE CROWN has grooved undercuts on the inside.

Every dowel-pin, used for attaching WHITESIDE CROWNS, is serrated on all four sides. What possible device can make a stronger attachment?


The Point of WEAKNESS in OTHER POSTS
A POINT OF STRENGTH in WHITESIDE'S.



The placement of the mortise, near the labial face of the WHITESIDE CROWN, makes it possible to use this crown in cases of close occlusion without affecting its strength in the least by grinding.

Booklet describing the various applications and modes of mounting the WHITESIDE CROWN sent FREE on application

---

The Whiteside Dental Man'f'g. Co.

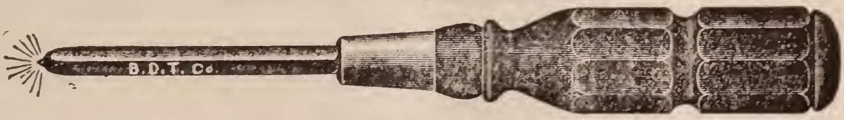
(INCORPORATED)

DENTAL SPECIALTIES. YOUNGSTOWN, OHIO

A Diamond Drill with a Point

Made from carefully selected stones, diamond fully exposed, and **actually centred.** We guarantee the **setting** and the accuracy in which they run. Especially adapted for drilling retaining points in porcelain teeth and Etching Inlays. Price, **$2.50.**

SAVE MONEY



CUT ONE-HALF SIZE

Don't throw away your grinding stones, but true them up with one of our **DIAMOND TURNING TOOLS,** and as a matter of fact they will cut better than they did orginally. Price, **$3.00.**

Our Cavity Shaper, being heavily charged with diamond dust, will be found very valuable in shaping cavities in artificial teeth. Should be run wet. Price, **60 cents** each.

Our Diamond Disk, being heavily charged with diamond dust by our new process, will be found very durable, and will cut on both sides as well as on the edge. These disks are very thin and will be found very valuable in separating teeth. Price, **$1.75** each.

Cavity Shaper

For sale by the leading Dental Depots, or sent, on receipt of price, by the manufacturers,

Diamond Disk

BOSTON DIAMOND TOOL CO.,

Nos. 114-116 Bedford St., Boston, Mass.

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

UNIVERSITY OF PENNSYLVANIA.

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,
Dental Hall, Cor. 33rd and Locust St.

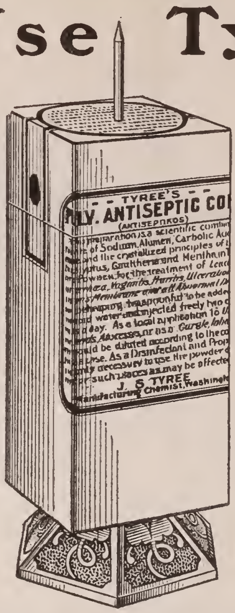
PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903.
Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

WILBER F. LITCH, M. D., D. D. S., Dean,
1507 Walnut St.

ANTISEPTIC DENTISTRY
ASSURED
If You Use Tyree's Antiseptic Powder



Indicated in Ulcerations, Foul Cavities, Extractions, Abscesses and for cleansing all Odorous Secretions.

Sample and Booklet Free.

Costs less and goes 10 times as far as the other kinds.

You add the water and save the cost, thus a reliable, dry and liquid antiseptic in one.

Keep It On Your File

J. S. TYREE, Chemist, WASHINGTON, D. C.

TABLE OF CONTENTS.

August, 1904.

PAGE
Oral Syphilis—Dr. A. L. Midgley 133
Rigg's Disease—Dr. B. F. Arrington 135
Cohesive Tin—Dr. W. M. Randall 137
Pressure Anaetshesia—Dr. G. B. Speer 138
Liquid to Use in Porcelain Work—Dr. J. L. Helmer..... 139
Co-operation of the Public Schools in Teaching "Good Teeth Good Health"—Dr. Richard Grady.......... 140
Replacing Broken Facings 144
Discussions 145
Editorial Notes 152

"THE IDEAL ADJUVANT"

DENTACURA

A Tube of **DENTACURA**, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties*, than a bottle of any antiseptic mouth wash (costing three times as much). At the same time **DENTACURA** possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test **DENTACURA** in his practice.

SAMPLES AND LITERATURE FREE

ADDRESS,

Dentacura Company,
NEWARK, N. J., U. S. A.

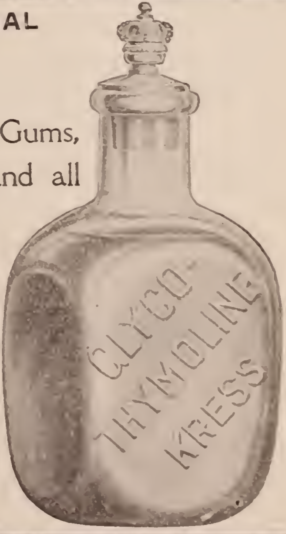
GLYCO-THYMOLINE

IS INDICATED WHEREVER THE ORAL SECRETIONS ARE FOUND TO BE ACID.

In Pyorrhea, Alveolar Abscess, Spongy Gums, Chronic Ulceration, Abscessed Antrum, and all Abnormal conditions of the mouth the **Alkaline Antiseptic** treatment cannot be too strongly advocated.

SPECIAL OFFER.—This Sprinkle Top Bracket Bottle, together with samples for your patients, will be sent free to any dentist mentioning this journal.

Kress & Owen Company,
210 FULTON STREET. NEW YORK CITY.



THE ALKALINE ANTISEPTIC

The Best Antiseptic for a Dentist's Prescription

LISTERINE

A true prophylactic

Listerine exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

"THE DENTIST'S PATIENT". An interesting little brochure on the care of the teeth, will be forwarded upon request, together with a new pamphlet of 32 quarto pages embodying:

"LISTERINE UNDER THE MICROSCOPE". A tabulated exhibit of the action of Listerine upon inert laboratory compounds.

"COMPARATIVE VALUE OF CERTAIN ANTISEPTICS". An interesting showing of the comparative value and availability of various antiseptics in the treatment of diseases of the oral cavity.

"EXPERIMENTAL RESEARCHES". A report by members of the Association of Analytical Chemists of the Pasteur Institute, Paris, concerning the antiseptic action of Listerine.

LAMBERT PHARMACAL CO.

SAINT LOUIS, U. S. A.

Be assured of genuine Listerine by purchasing an original package.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE
ESTABLISHED IN 1839

THE OLDEST DENTAL MAGAZINE IN THE WORLD
INDEPENDENT---------PUBLISHED BY DENTISTS FOR DENTISTS

VOLUME XXXV
NUMBER [illegible]
THIRD SERIES
AUGUST
1904

Editor:
Wm. Gird Beecroft, D. D. S., Madison, Wis.
Associate Editors:
Albert H. Ketcham, D. D. S., Denver, Colo.
Emory A. Bryant, D. D. S., Washington, D. C.
Geo. S. Martin, D. D. S., L. D. S. ,Toronto Junction, Ontario.

Publisheu on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 pe.· year.
Address all communications, both business and editorial to the editor.
Entered as Second Class Matter, Madison, Wis.

ORAL SYPHILIS.

Albert L. Midgley, D. M. D.

Dental Externe to Rhode Island Hospital; Assistant Dental Surgeon to St. Joseph's Hospital, Providence, R. I.

(Written for *The American Journal of Dental Science.*)

Syphilitic lesions about the tissues of the mouth are met with very frequently in the practice of dentistry of today, and on account of the infectious nature of the disease and the grave injury to both patient and dentist through the accidental transmission of the syphilitic virus, a thorough knowledge of the pathology of syphilis is absolutely necessary. When we consider the number afflicted, and the vast amount of suffering and destruction of tissue that syphilis causes, we should be constantly on the look out for any of its lesions, and in justice to all patients, regard with suspicion any sore or ulcer found in the oral cavity.

The care of the mouths of syphilitic patients is of the utmost importance to their welfare, and with modern dental therapeutics, hygiene and prophylaxis we are in a position to aid the patient and lessen greatly the dangers of transmitting the disease.

Syphilis appears in two well marked forms, acquired and hereditary, which differ somewhat in the time, order and appearance of their lesions, yet resemble each other very closely. The course of the disease is divided into three stages, primary, secondary and tertiary, but in hereditary syphilis there is no primary stage. The first stage of the disease includes those symptoms, and pathological expressions which appear from the time of infection, up to the appearance of the symptoms of the second stage. The secondary stage begins seventy to eighty days after infection, and includes the lesions of the skin, and mucous membrane with the constitutional disturbances. Necrosis of bone, and the soft tissues is characteristic of the tertiary stage. The symptoms of this stage may appear at the latter part of the secondary or manifest themselves sometimes later.

The chancre is the only lesion of the first stage, and appears at the point of infection, after an incubation period of from 18 to 25 days. It is usually but a single lesion. We may, however, find the multiple variety which is rarely seen in the field of dental operations. An early recognition of this lesion is very essential in preventing the spread of the disease for its secretion though scanty, is exceedingly virulent.

The chancre begins as a small, round, well defined excoriated spot, with an indurated base, raised edges and depressed centre. The surface is smooth, polished and free from granulations, and its color varies from a light to a brownish red, which may turn to a coppery color, and become covered with a crust. At the same time or shortly after the appearance of the chancre, the ganglia in direct relation to the seat of infection, become enlarged. This affection of the ganglia may be only unilateral, but it is usually bilateral, with the enlargement more pronounced on the side corresponding to the seat of infection.

The following statistics may be of interest. In 9,059 cases of extra genital infection, 1,810 appeared upon the lips, 734 were found in the buccal cavity, 401 were situated upon the tongue, tonsils or gums, or in other words 32% appeared within the field of dental and oral surgery. Another fact worthy of note is that 35% of chancres of the finger, have been found among dentists.

The characteristic lesions of the second stage of the disease appearing in the mouth, are mucous patches. They are flat or slightly elevated, about ½ an inch in diameter, and vary in color from a grayish pink to a reddish brown. They begin as small red spots, oval or round in outline, and discharge a sticky foul secretion, which is very virulent and contagious. They are most frequently seen on the mucous membrane of the cheek, generally at a seat on a level with the line of occlusion of the teeth. They are also found upon the roof of the mouth, and at the angle, and also upon the tonsils, fauces and sides of the tongue. The saliva itself is not infectious, but is made so by flowing over these patches, and coming in contact with the secretion. The mucous patches often increase by enormous cell development to quite a size, and then the name condylomata lata is given them.

To successfully treat these forms of syphilitic lesions, a clean condition of the mouth is essential for they flourish very well in an unclean mouth, where tartar and decaying teeth are present. With improved ideas and methods in the treatment of syphilis, lesions of the third stage of the disease are not as commonly met with now as formerly. Necrosis of bone is very characteristic of this stage of the disease, that of the hard palate especially. Syphilitic gumma of the tongue are also seen in this stage, but they are very rare.

Mercurial stomatitis is a condition not very often seen, owing to the care used at the present time in administering mercury. It is characterized by a metallic, stale odor of the breath, coated tongue and a bitter coppery taste which is more disagreeable upon awakening. The gums are puffy, have a tendency to bleed easily, and a blue line appears along the gingival border. Other symptoms are increased flow of saliva, diarrhoea, head ache and no appetite. If untreated the tongue swells; the teeth loosen and fall out; the lips and checks become tumid and ulcers appear in the mouth.

In the treatment of this condition, mercury should be stopped, and an astringent mouth wash prescribed. As as antisialogogue 5 minines of a solution of atropine sulfate, one grain to an ounce of water, hypodermically, every four or six hours is very good.

Hereditary syphilis closely resembles the acquired form, though there is no chancre, nor are its lesions as typical and regular in their appearance. The most important symptom is snuffles, which is due to a thickening of the nasal mucous membrane. The lips are fissured and mucous patches and condylomata are found upon the mucous membrane of the buccal cavity as in acquired syphilis.

In hereditary syphilis the teeth are important landmarks. The deciduous teeth have nothing pathognomonic about them, although in syphilitic children, they often present certain peculiarities. The superior central incisors of the permanent set are the most typical, and are of a dark color, narrow, peg shaped and broader at the cervical margin than upon the cutting edge, which is crescent in outline with the corners rounded.

The horizontal furrows which are often seen have nothing to do with syphilis, but are usually the result of some one of the diseases of childhood. In making a diagnosis, if the centrals are well marked, they should be given careful consideration, and if doubt exists, it is well to look for further evidence of syphilis.

The importance of a thorough knowledge of this disease is very evident, and if through our ability to recognize its lesions, and through our care in sterilizing instruments, we prevent the spread of the disease among our innocent patients, we are doing much to place our science on a higher and broader plane.

RIGG'S DISEASE, PYORRHEA ALVEOLARIS, OR SO-CALLED INTERSTITIAL GINGIVITIS, IN A NUT SHELL.

By B. F. Arrington, D. D. S.,
Goldsboro, N. C.

(Written for *The American Journal of Dental Science.*)

This disease call it what we may matters not, so we diagnose correctly and treat successfully. Scurvy is the name by which it has been longest known, and is most generally spoken of by the masses. Gingiva pericementitis or periastitis would possibly be more expressive and correct, locating point of first perception and defining limit of disease.

It is unquestionably a local disease of small compass, and not constitutional or partly so, as some contend, as evidenced in failure to check and cure by constitutional means after long months and years of treatment by some of the ablest men in the profession. Whereas by local treatment it is easily checked and cured.

The disease is confined exclusively, except as to features of sequence, to the membrane lining walls of teeth sockets and covering roots of teeth from apex to alveolar margin. The first symptom of the disease always presents unmistakably, at gum margin, and seldom before the age of ten, and rarely after forty or forty-five.

The cause, not definitely agreed upon, unquestionably is local, and may consist, chiefly if not exclusively in neglect of removal of impacted food substances around the necks of teeth until putrefaction and poison affecting the membrane above named the result, with serious consequences following, destruction of membrane, waste of process and loss of teeth. To prevent this unfortunate state of disease and loss of membrane, alveolus and teeth, the daily use of tooth brush with plenty of water in mouth after meals, for cleansing teeth and removing debris from mouth, as a life practice, commencing with the first eruption of permanent teeth there would be but seldom if ever a trace of the disease. Likewise, after treatment and cure is effected, if brush and water is systematically used as good judgment should dictate, there would be no return of the disease. These assertions are based on facts realized in practice, treatment recorded and results watched.

To thoroughly remove the deposits from roots of teeth, guarding against injury to cementum is first feature and first duty in treatment, then the free use of dilute sulphuric acid and pulverized pumice stone for perfect cleansing of teeth, and wholesome effect of the acid upon the soft tissues and wasting alveolus, followed by a liberal application of campho-phenique or other suitable remedy for the healing of soft tissues, as the winding up finish in treatment is all that is required for check and cure of the disease, and one treatment at one sitting is quite sufficient in the majority of cases. But few cases, the most extreme, with loosened teeth and free discharge of pus do not require more than from four to six weeks to effect a cure, and no special need for professional attention after two or three days following removal of deposits. The teeth will not tighten in sockets so soon, but that feature of restoration to a normal status, is only a question of limited time if instructions in use of brush and water are persistently followed.

I will venture to say without fear of truthful contradiction that a large majority of all the varied phases of the disease so extravagantly mentioned by some writers, claimed to be produced by sundry *local* and *constitutional causes* (very absurd) can be successfully treated by the simple line of treatment above mentioned. I am sure the fact would be definitely realized in every case where there was positive evidence of deposits on roots of teeth for such and none other are genuine cases of the disease.

For more than twenty years this disease has been extravagantly written about and discussed, most sensational and impractical and void of good results. Some of the ablest men in the profession, men that have done much for the profession on various lines have sidetracked wonderfully and blunderingly, and displayed great weakness in discussing this subject, evidencing much ignorance pertaining to the disease, and demonstrating easily the fact to all reasoning unprejudiced minds, that they were more sensational and speculative in theory, than conservative and practical in practice. When a dentist (matters not who he is or how prominent) speaks of this disease as the *effect* of *numerous constitutional* and *local causes,* and advises in treatment the use of a multiplicity of remedies, and go to the extent that some do, in advising use of compressed air with force from fifty to seventy-five pounds, cataphoresis, cutting and scraping away the cementum and alveolar process, devitalizing nerve pulps, cutting off crowns of teeth and crowning, the application of lactic, tricheorecetic, sulphuric and other acids for softening and removal of deposits, and prescribe blood letting, Turkish baths, a dose of epsom salts and other remedies every day for weeks, general constitutional treatment, pointing remedies to kidneys for check and cure of the disease, you may mark it down in plain letters, that they are ignorant on the subject, and are indulging much guess work in theorizing and practice, and have not the slightest practical conception of the true character of the disease, therefore are not safe guides to follow after in practice. In my judgment, their much writing and talking on such unreasonable lines of procedure in treatment, has done more harm than good to the profession and to those they have treated.

What we want and most need in treatment and for cure of the disease, is a fair amount of plain, practical common-sense reasoning, with practical conformity to nature's requirements and less of the speculative, sensational, theorizing guess work that has proven so confusing and misleading. This fact is sustained by daily observation of results that follow treatment. Reliable, safe practice must and will come to the front. It is being demonstrated in daily practice, and all that is requisite for acceptance of the truth, is to stand by and witness practical demonstrations, and to record and watch results.

There may be some doubting Thomases in the ranks who will not willingly accept plain truth statements established through practice, unless considerably tinged with the sensational, such is the measure and make-up of some dentist, a weak feature and to be regretted.

By waiting and working faithfully on conservative lines, we will realize with great satisfaction that what we call Rigg's disease, though a very prevalent and troublesome disease (mostly for want of a correct comprehension of cause) is not a very big thing after all, and is subject to cure and permanent relief by moderate treatment, and the control of every dentist who is willing to venture experimental practice to determine if statements are facts sustainable in practice.

Many dentists when success is realized and there is no further doubt on mind, will possibly often smile when thinking of the many unreasonable, amusing and absurd theories and practices proclaimed by prominent dentists, pertaining to cause and treatment of this very common and easily treated disease.

I will suggest to reflect and let reason rule for a right conception of cause, and moderate, successful treatment of what is known as Rigg's disease.

The disease is almost as common with certain classes as tooth decay, and dentists generally can, if they will, after a little experience, treat it easily and as successfully as failing teeth. Then all this sensational talk and writing on the subject, and the much unreasonable, out of line treatment will cease, and by the lapse of a decade or two, extreme typical cases will but seldom present for treatment.

The distinguished Dr. James Truman of Philadelphia, of more than fifty years' experience in dental practice, and for many years a conspicuous educator as professor in one of the leading dental colleges of our country, in speaking of this discase, has said: "Eternal vigilance is the price we must all pay for health." A truth indisputable, therefore daily prophylactic treatment should be freely indulged for the perpetuation of a healthy state of teeth and gums. This done, much will be accomplished, all will come right in a reasonable period of time, and but little will be said or heard of Rigg's disease, from the fact, that dentists generally will be treating it as successfully as any other service in dental practice.

COHESIVE TIN.

By W. M. Randall, D. D. S.

Professor of Operative Technics, Dental Anatomy and Comparative Dental Anatomy in the Louisville College of Dentistry.

(Written for *The American Journal of Dental Science.*)

The exceptional qualities of tin as applied to operative dentistry have long been recognized by the experienced operators of the profession as a potent element in the successful results attained by the so called "Stopping Process."

Its highest standard of softness, at the same time retaining its toughness and strength, renders it easy of manipulation, more uniform and certain in its adaptability than the Noble Metals of gold and platinum. The *reciprocal* relation of tin and gold—in combination—will prevent the active conduction of thermal changes and also give a preserving property unequalled by any other of the filling materials either in combination or independently.

The practical daily use of *Cohesive-tin* in the operative field is restricted to comparatively few men in the profession. Still if its *really meritorious* properties and indications were more widely known among our own practitioners, there would be very few dentists who would not religiously consider it one of the reliable factors necessary to a safe and successful practice. The term *cohesion* is very prone to be mis-applied in the accurate designation of tin-foils as placed upon the market under the general head of "dental supplies." This most *vital* and important physical property of tin can only be fully appreciated in the use of "Chemically Pure" and non-contaminated metal. And we might add, can not be found except in the bar of pure tin ore with exception in one or two of the tin-foils as found in the dental supply houses, newly manufactured and *especially* treated for non-contamination by gases.

Indications.—Cohesive-tin can be used to great advantage on unexposed surfaces of the bicuspids or molars; although it may be used on the lingual surfaces, and the *interior* of gold fillings on the anterior teeth. It does not permeate the tooth structure as the amalgams and will not give a darkened effect of the enamel or in the least discolor, except in some mouths, the immediate area of the exposed surface of the tin may discolor.

The writer prefers in the *preparation* of *Cohesive-tin* to cut from a fresh surface of pure bar-tin with an ordinary, clean bladed pocket knife and by a steady and forcible scraping motion cut long thin and regular shavings from the bar, thus readily and conveniently preparing the material to suit the operator and the size of the cavity at hand. The cavity should also be exempt from all signs of moisture and properly prepared as for cohesive-gold—although the point angles need not be so accurate. The cavity preparation and cavity toilet should be ready for the immediate introduction of the *freshly* cut tin.

Presuming a complex disto-occlusal single-step cavity on the inferior first or second bicuspid prepared for the reception of the filling;—the operation of filling in order of procedure would be as follows: viz:—(a) Apply a closely fitting matrix, carefully observing all *lines* of contour for the resultent filling and accurately force a wooden wedge in the inter-proximate space until you get perfect adaptation of matrix against the gingival margin of the cavity. (b) Using serrated gold pluggers proceed to introduce the long tin shavings in a similar manner as for cohesive-gold ropes. However greater quantities of the tin may be condensed under the plugger than of gold consequently it is more rapid in the filling process. (c) Care should be exercised to see that the tin is sufficiently condensed throughout to secure perfect adaptation to the walls of cavity and matrix; but its *vital* working properties may be seriously injured by heavy and continued condensation. (d) The tin should not be brought nearer the occlusal surface than the gingival third of cavity and in cases where it would be exposed to direct view it may be veneered with cohesive-gold foil even in those conditions. (e) There should be enough separate retention in the walls of the cavity yet unfilled to hold the cohesive-gold in the cavity, independently of any cohesion it may have with the tin;—although its strong adhesion, due to gummy surface of the freshly cut tin and the inherent strength of the mechanical interdigitation produced by the twisting motion of condensing the gold on surface of tin with serrated pluggers—seems to give the effect of cohesion, but it is not complete thus it is not true cohesion; as will be proven by the fact that it will flake or peel off of the tin unless this feature of separate retention is duly considered. (f) Owing to the softness of the entire mass of tin the matrix should not be removed until all the condensing force has been applied to the filling, without the support of the matrix the tin base may slightly flow, but with the hard surface of the gold exposed to the stress of mastication after the filling is finished this feature is removed. (g) The finishing process is made very easy and simple, especially at that most vulnerable point just below the gum gingiva. The excess may be removed with the use of strong linen or light emery or sand-paper strips about two millimeters wide; and the perfect adaptation due to the softer quality peculiar to tin for tooth structure, makes the gingival third of the filling much less liable to the ingress of secondary decay.

Cohesive-tin is highly indicated in contour fillings on the six anterior teeth where the cavity is deep and there is probability of pulp-irritation and finally hyperemia as a result of thermal change. The mere *presence* materially reduces and in many instances entirely prevents the uncomfortable or irritating effects of hot or cold.

Reflections.—Use "chemically pure" bar tin.

Cohesively the use of tin is principally in contour fillings in combination with cohesive-gold.

The material should be used freshly cut from the bar, and not allowed to become oxidized or in any way contaminated before using.

It should not be introduced in the cavity in such a manner as to be exposed to direct view when the filling is finished.

Always use an accurately fitting and strong matrix and let it remain in position until entire filling has been introduced.

When the tin is exposed at the gingival third of the cavity, it is more easily and perfectly finished than with any cohesive-gold. Adaptation in difficult positions may be had with much less effect to the operator and is more perfect than cohesive-gold.

Tin coheres to tin, and gold coheres to gold, thus perfectly welding:—Gold does not cohere to tin but the adhesion is electrically and mechanically perfect and besides excluding any carios action on the surrounding tissue the combination adds a peculiar preserving property to the finished filling.

The redeeming virtues of this combination can not be fully appreciated until tested in more than one subject. Give it a trial and be your own judge.

PRESSURE ANAETSHESIA.

By Dr. G. B. Speer, Youngstown, O.

(Written for *The American Journal of Dental Science.*)

This subject is of very great importance to the profession at the present time as I believe that the removal of the nerve and the filling of roots properly is one of the most needed of the operations we use at this time. I first attempted the removal of the nerve by using cocaine and vulcanite by pressure and while success can be attained by that method it is far from satisfactory in my hands, so I took up the use of the syringe and there I found the trouble lay in the getting of a point. First I used just a taper point and a taper burr that was good in some cases, but was of no use in case of exposure, so I made a point with a bell shaped end in which I inserted a short piece of rubber hose about one-eighth of an inch in diameter that worked very well in case of large exposure, but was useless in small teeth. Then I reversed the procedure and made a point with a shoulder for the rubber to hold against and I can get that into small exposures. I then found that I needed those different points bent to several different angles and so made a point out of a long needle which you can get at a drugstore—about two inches long—and use this in a root where the nerve is dead except a small piece at the point of some roots. I now have a very good supply of points but am liable to make some of other shapes at any time. I then turned my attention to getting better control of my syringe, and made an attachment by which I use screw power and I am very well satisfied with the way in which I can control the pressure, and that is a point not to be overlooked. Next, do not forget to use the rubber dam for I use a saturated solution of cocaine in distilled water and only a small amount is necessary. Aonther essential point is to insert your broach to the end of the root by a straight push, then rotate till you have twisted the nerve off before you attempt to withdraw it and you will not have so much hemorrhage to contend with. I do not think any one will ever go back to the use of arsenic if they try this method. It leaves the tooth in so much better condition, as the canals are left smooth and clean and less time is required in which to do the work. I have frequently finished a tooth at the first sitting when the patient came from a distance, making it an object for them as well as for myself. You also get rid of the patient who comes in to have a tooth treated and never comes a second time. This treatment gives a tooth less chance to become discolored as it can be kept dry during the operation. I have been using this mode of procedure for the past two years and believe I am justified in claiming to be successful in my work, and would be glad to answer any questions by personal letter, or preferably, through the journal, as others may read the same.

LIQUID TO USE IN PORCELAIN WORK.

By J. L. Helmer, D. D. S.,
Kokomo, Ind.

(Written for *The American Journal of Dental Science.*)

Alcohol I have found is the best liquid with which to moisten the porcelain powder, for the evaporation takes place more rapidly and there is no steam formed; I attribute bubbles to the steam that is formed after the case is placed in the furnace. I may be wrong on this point, but anyway the rapid evaporation of the alcohol allows one to pack the powder tighter and when the case is inserted in the furnace there is not enough moisture to make pieces of the body pop off. I have found that I can work porcelain bodies with pure alcohol easier than I can with any other liquid. It will do no harm for you to try this and it may work better than what you are now using with which to moisten the porcelain powder. In a piece of porcelain in which there is a bubble of any perceptible size, the desired shade is not obtained because of this bubble the shade is thrown off to some extent. So in the working of porcelain an aim should be to obtain a dense piece as free from bubbles as possible.

MIXING OF CEMENT FOR SETTING INLAYS.

The mixing of the cement for the setting of inlays is a great feature of the inlay problem. At different times I have made inlays for cavities in extracted teeth—just to keep my hand in training—and found that they were very easily fractured out, some time after being cemented in the cavity. Why was this? I did not mix the cement properly. I had been told and we all have been told to mix the cement to a creamy consistency. I had done that and the inlays were easily fractured out just the same. But I came on to it a short time ago how to better mix my cement so that it will hold the inlay better. I think one of the great troubles inlay workers have is in the fact of the inlays not staying in place after being cemented.

Cement usually is mixed too rapidly, the ingredients are not thoroughly incorporated. Now, don't mix cement so rapidly, take your time at it. Incorporate a little of the powder with the liquid, thoroughly mixing them before adding any more of the powder. When the first bit of the powder is thoroughly mixed then add a little bit more, mixing it in thoroughly. Continue to add powder little by little, thoroughly mixing and spatulating till you have a mix some thicker than cream. Cement mixed this way will not crystalize rapidly. The adhesive properties are much greater than when mixed rapidly.

COOPERATION OF THE PUBLIC SCHOOLS IN TEACHING "GOOD TEETH, GOOD HEALTH."

By Richard Grady, M. D., D. D. S.
Dentist U. S. Naval Academy.

(Read before the American Medical Association, Atlantic City, N. J.)

"Whatever we wish to see introduced into the life of a nation must first be introduced into its schools."

In my office there is a motto, "Good Teeth, Good Health," suggestive of the central thought of this paper. In many cases it has made a deep impression upon the mind of the patient whose eye has caught the inscription as he entered the room, and he has been prompted to read the lines attached to it:

Without good teeth there cannot be thorough *mastication.*

Without thorough mastication there cannot be perfect *digestion.*

Without perfect digestion there cannot be proper *assimilation.*

Without proper assimilation there cannot be *nutrition.*

Without nutrition there cannot be *health.*

Without health what is *life?*

Hence the paramount importance of the teeth.

It is a noteworthy fact that a large proportion of my patients are boys and girls from six years of age upward, and young men from fifteen to twenty-four years of age. For the past twenty years I have been visiting dentist to schools and public institutions in addition to caring for children in my office practice.

The examination of many mouths has given me an opportunity such as few, if any, dentists have had of noting the condition of the teeth of young people, so that I ought to have a speaking acquaintance with my subject. It would be difficult, in my opinion, to find a like number of children in any public school (and I speak from a varied experience of nineteen years as a teacher) in as good physical condition as those who have received systematic care of the teeth.[A few years ago I discovered that not one of the 500 children in one of the public institutions in my city had a toothbrush. The children of that institution are now supplied with toothbrushes, but I fear there are many similar institutions in the world where the toothbrush is never seen and the dentist never heard of.

There is a growing demand that the subject of hygiene should receive increasing attention in general education. Happily it requires less knowledge to keep what we already have than to recover it when lost. How to take care of the health or to avoid many causes of diseases may be learned. It has been estimated that half of the children born into the world die before reaching the age of sixteen. We can truthfully charge a large share of this great slaughter to ignorance or wilful neglect.

The efficiency of prevention is proverbial. Pain is undoubtedly one of the most dreaded accompaniments of physical ills. I am fully persuaded that more than fifty per cent. of dental caries is absolutely preventable by medicines internally administered which act specifically in the mouth; alike pleasing and imperative is the appeal to both ambition and intelligence to prevent, rather than to repair, the ravages of decay.

Is it right, therefore, that the vast research respecting the hygiene of the mouth and control of dental disease, which has employed practitioners of dentistry for years, should go for nothing in education; that this wealth of knowledge should be passed by as if it had no existence, and the young people of the country grow up as ignorant of it as if they had lived centuries ago? The problem which the science of dentistry is endeavoring to unfold, and the end which it aims to attain is to prevent the bacterial destruction of tooth-structure. If the teeth are not allowed to accumulate deposits on either their exposed or protected surfaces, they will, it is claimed, be exempt from caries. More broadly stated the propositon is: Given the varying predisposition of different individuals to caries, which is governed by the laws of heredity and environment, the growth of micro-organisms in the mouth is in proportion to the amount of disturbance they suffer, or rest and opportunity they enjoy. This is a recognized fact and almost axiomatic.

A large amount of suffering may be avoided through proper knowledge conscientiously applied. It would be a great saving of "Young America," and thereby of all America, if every board of health imitated the example of Ontario's board, which adopted the following resolution: "That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the Minister of Education."

It will thus be seen that school boards have been urged to take the matter up. But treating diseased teeth of school children at public expense seems entirely out of the question at present; yet why should it be less reasonable to have visiting dentists than visiting music teachers, and drawing teachers, and teachers of physical culture? The position of visiting dentist in our public schools would not be a sinecure. There would be work to do every day. Just how far he should be armed with authority might be variously decided by different school boards. In general, it may be premised that his care and attention to any individual pupil should end where such pupil's physical condition ceased to be a threat or an offense to the health of his fellows. The State, however, at once can touch the subject by attending to the question of prevention. If bad teeth could be prevented the gain to the State and the individual would be of enormous value, as it is wonderful how many diseases can be traced indirectly to bad teeth.

It is the noble privilege of the teachers of the country (who are acknowledged as safe guides and who aspire to possess an amount of physiological knowledge such as every educated person ought to possess) to promote in some degree the preservation of the teeth of those under their care; and this they can do by inculcating early and earnestly and with the emphasis of a high religious duty the principles of oral hygiene. It is a subject in which all mankind has an interest, even though it be, as it too often is, an unconscious interest. The life of every man, woman and child ought to be guided and governed by its laws. This being so, the subject should be presented and agitated in many forms until its importance is appreciated. And not the least of the benefits which will follow the better diffusion of physiological and sanitary information will be the protection of the community from the impostures of charlatans and also discrimination in the qualifications of dentists.

Side by side with medical science, dentistry has grown. Now the teeth are recognized as important objects of medical study as the eye or ear. The same spirit which has led to enlisting the active co-operation of the public schools concerning measures for preventing the spread of contagious diseases of childhood should be insisted upon in the care of the teeth. A movement of physicians to secure public action on this matter will at once exert a moral force. Mothers will be more watchful and painstaking to avoid the disgrace of decayed teeth in their children's mouths. Children will be moved to take a pride in spotless teeth; and in this age to acquire an ambition to have anything white and spotless about the person is commendable.

School life and conditions regarding caries are at their worst in our great cities and require the most urgent amendment. The inculcation of cleanly oral habits among children should be insisted upon. The hope of dentistry is to employ prophylactics instead of remedies to prevent decay instead of treating it. It is just as important and as necessary to keep the teeth clean as it is to keep the hands and face clean, because all the food we eat must come in contact with our teeth. We do not like to eat when our hands are unclean, and why should we take pleasure in satisfying our appetites when our teeth are unclean. It is essential that a child be taught how to brush the teeth properly, and for this purpose I keep in my cabinet a toothbrush and set of teeth mounted with which I give a careful object-lesson. Printed directions are attached to the brush: "Brush the upper teeth downward and the lower teeth upward on their inner and outer surfaces, preventing injury to the gums, and effectively cleaning all the crevices of the teeth." A toothbrush drill at school is as needful as any gymnastic exercise for the preservation of health. There is strong reason to believe that many diseases of the nervous system, respiratory organs, and alimentary canal, may be due to the fact that the masticatory organs have been neglected.

A paper on the theme of which I write would a few years ago have excited but little interest. To-day parents, teachers, influential citizens and even professional men, are being educated to the full comprehension of the fact that of all diseases of a parasitic nature to which mankind is susceptible, dental caries is by far the most frequent. The only proper course to pursue in dealing with this question is by persistently and intelligently educating the minds of the public as to its exact status, and whatever we wish to see introduced into the life of a nation, we must remember, must first be introduced into its schools. The school is the one force that can unify all conditions of society. Here we have the children of the nation in their entirety and we can if we will teach them that soundness of teeth is in itself one of the best evidences of general soundness of body.

We are now able to say to teachers and pupils that it has been proven beyond doubt that decay of the teeth is progressive—first stage chemical, second, parasitical; that the prevention of dental caries depends, first of all, on strict cleanliness of the mouth and teeth, the importance of which cannot possibly be overestimated. The details necessary for the proper fulfilment of the same must be given in textbooks, in public talks and in the public press. Undoubtedly, it can be said that the toothbrush and plenty of clean water stand at the head of all measures of this nature, and that the next prophylactic means is the intelligent use of proper antiseptics. A tepid salt solution has been recommended as an inexpensive and effective antiseptic for rinsing the mouth, and where there is a tendency to bleeding of the gums powdered boric acid may be used. One thing not often spoken of in reference to cleaning teeth is the value of rinsing. Many patients know nothing about it and the average dentist does not think it worth while to mention it to them. The matter of closing the lips and forcing the water vigorously back and forth between the teeth exercises an important part in cleansing them.

An elementary outline of dental science, in language plain and intelligible, embodying a brief exposition of the actual present state of knowledge accepted as authoritative, should be taught to, and studied by, all pupils of the public schools whose capacity will admit of it, and in the same manner as other like branches are taught and studied, if necessary with text-books in the hands of the pupils.

We want to emphasize the startling fact that the teeth of children have been deteriorating to such an extent that it has now become a serious matter. Of all causes of decay uncleanness is perhaps the most fertile. The clean tooth may decay —the neglected tooth must decay. It has lost its chance of self--defense.

Irregularities of the teeth, as shown by Dr. E. S. Talbot, are also on the increase, and there seems to be no plan by which the increase can be checked unless it be in the care of children's teeth and the observance of common-sense rules regarding extraction of the adult teeth. Check in the beginning irregularities which might prove mischievous if left unattended.

We want children instructed in the care of the mouth and teeth, in cleansing the whole mouth including the tongue, and the sooner this is done the sooner will the many evils arising from the present neglect be stayed. Children must be taught some system of oral hygiene. See that school children receive thorough instruction as to the utility of good teeth. The teaching which a growing child imbibes in school sticks fastest in its memory. "My teacher told me to do it that way." Young minds are very susceptible and they would readily understand the situation, especially if told the calamities liable to follow the neglect of their teeth and mouths. These same children will soon be the parents of the community in their turn, and they would have the advantage not only of better mouths of their own, but of being in a position to care for their children. What has been done in the treatment of zymotic diseases, namely, an improvement in the condition of surroundings, is precisely what is required respecting the teeth. Instead of regarding the teeth as foes, children should be taught to regard them as special friends, and devote to them their best care.

We want to remove the possibilities of the propagation of disease in public schools through the present condition of children's mouths and teeth, and incidentally the discomfort of parents whose children have aching teeth, sleepless nights, distorted nervous systems, bad digestion, alveolar abscesses, foul and fetid breaths. When children are in this oral condition the whole system is out of order and they are more susceptible to disease.

Answering the question, why do we want instruction and inspection to prevent sacrifice of children's teeth, and the accompanying effects on their health, I would say:

1. Take it all in all, care of the teeth pays in comfort, in beauty, in the conservation of health from youth to old age. "Better take pains than to have pains take you."

2. It has been demonstrated that 95 per cent. of children have their permanent teeth decayed, ranging in number from two to sixteen per child. The magnitude of the evil appears at the simple mention of the fact. Can children with carious teeth grow into healthy adults? Can a race thrive whose children are so afflicted? When one has attained full growth it may not matter much whether the food is masticated by natural or artificial means, provided it is properly done; but with children it is a different matter, and the state of our children's teeth is a question of national importance. In chronic indigestion only two persons in one hundred have sound teeth.

3. Relatively, few children have teeth filled, and those under ten years of age rarely have the dentist's care except for the extraction of loose and aching teeth. Why is it that so large a percentage of our children, school-children, present features distorted, often due only to untimely, injudicious loss of teeth, deciduous and permanent? Because of ignorance or neglect.

4. The teeth and mouths of many children are in an unhealthy and disgusting condition, which not only injures their own health but also the health of the teachers and other children who are compelled to sit with them, it may be in overcrowded or ill-ventilated rooms. It ought not to be difficult to impress teachers with the dangers which attend the exuding of pus from abscessed teeth. In every community there are those who are enthusiasts on the subject of pure and wholesome food, but whose mouths are in such a neglected condition that the air which passes through them is polluted and every mouthful of food swallowed carries bacteria with it into the stomach. The almost entire futility of sterilizing articles of diet for patients in whose mouths chronic abscesses exist, or whose teeth are covered with tartar mixed with mucus and food in a state of decomposition, need hardly be mentioned. A source of danger from decayed teeth is the possible introduction of parasites into the tissues

with which the teeth are connected. Parasitic organisms are numerous in articles of food, both as usual and occasional associates, and as it is very difficult to prevent small particles of food from lodging in the cavities of carious teeth and there undergoing decomposition, it is not impossible that by such means, especially if the cavity is the root-canal of a dead tooth, a parasite might enter the soft tissues.

5. There is also another source of danger to children who exchange pencils and chewing-gum, which after being in mouths mixed with pus are placed in the mouths of other innocent and unsuspecting children. These practices may be democratic, but they are vicious.

6. Girls whose teeth are defective, in a few years will be the mothers of the next generation. What about the claims of their children unless we now do our duty by the future mothers, and give them a chance to grow up as healthy women? Dr. D. Hayes Agnew said: "The world is becoming filled with a class of flat-breasted, spindle-limbed young women, unfitted for the varied and responsible functions of womanhood; qualifications, too, which under a different regimen and directed into proper channels would exert a most potential influence on all the great social and moral problems of the age."

REPLACING BROKEN FACINGS.

An excellent and simple method of replacing broken facings in bridge work and crowns was shown by Dr. E. A. Bryant, of Washington, D. C. After removing any pieces of porcelain and the protruding pins from the old backing, a new facing is selected and ground to place, new holes being drilled to suit the new facing. The two holes in the backing are now united by drilling out the intervening metal, thus forming a slot. Wrapping the tooth with a single thickness of asbestos paper, and passing a piece of iron binding-wire around it to keep it in place, the pins which have been forced through the asbestos are now united by soft solder melted into place with a fine-pointed soldering-iron.

After trimming, so that the lug (formed of the pins and solder) will easily fit into the slot in the backing, and counter-sinking the slot on its lingual side, the flat surface of the facing and the lug are covered with good cement and forced into position. While the small amount of cement contained between two pins and pinholes will not prove sufficient to secure a new facing in position, the larger surface of the lug and the slot will retain enough to offer the desired resistance.

If preferred, when the cement has hardened, most of it may be removed from between the lug and slot, and its place supplied with amalgam, which readily unites with the soft solder.

The procedure is so simple and evidently so practical that it will probably be welcomed by many to whom the repair of crowns in the mouth has been a perplexing problem.

Another ingenious method in connection with crown work was the making of dowels to fit roots, no matter what their size or form may be.

It consisted in making long slender cones of thin platinum, shaping them to the root canal and then filling them with good solder. The pieces of platinum are cut in the shape of a V and folded around a fine tapering mandrel so that the edges lap considerably. A number are made of varying lengths and diameters. After the gold cap is made in the usual way to encircle and cover the end of the root, a hole is punched in its center and enlarged to the full size of the root canal. Through this hole one of the platinum cones (unsoldered so as to admit of shaping) is passed down into the canal as far as it will go. Into the opening cone a tapering piece of wood is passed and moved around so as to force the platinum into contact with the canal walls. The protruding portion of the cone is now burnished down upon the flat surface of the cap and the two united with hard wax. After removing from the root the cap and cone are invested and united with solder, enough being used to run down into the cone and entirely fill it.

After the crown is completed it may be set with gutta-percha, since making the dowel the same size and form of the canal but little of it will be needed, and hence the rigidity of the piece will not be impaired.—Dr. S. H. Gulford, Ex. Stomatologist.

DISCUSSIONS ON VARIOUS SUBJECTS.

Dr. Tuller.—I, of course, have had years of experience in the use of arsenical preparations in the treatment of teeth we have to devitalize, and I came to the conclusion many years ago that some means to get along without it was very desirable. I have not used it in the past several years, except in a few instances where I have failed to get results with pressure anaesthesia, and in some of those cases—most of them, I believe—I failed with the arsenic as well, to reduce the pulps to insensibility. We have a lot of unpleasant things to deal with when we undertake to use arsenic, and among the things are aching teeth before the arsenic gets in its deadly work, and time consumed, not to mention the dangers of discoloration often a sequel to the arsenic method. In pressure anaesthesia I have met with stubborn cases and to such an extent that I have given up and fell back on arsenical treatment. I had an experience within the past sixty days. I had a patient with pulp exposures, one in a molar and one in a bicuspid. Both appeared to be favorable to the use of the instrument I so often use in pressure anaesthesia, and I applied it very thoroughly without any success in either case. I put in arsenic and sent patient away for forty-eight hours. When she returned I found pulp quite as sensitive as before. I applied the cocaine again under pressure, and after considerable time got into the pulp chamber. In both teeth I found a calcific deposit filling the chambers and extending a ways into the roots, terminating in each root in a live pulp. This deposit was not attached to the tooth at all, but filled the chamber with the exception of a thin peripheral space seemingly filled with serum or protoplasm separating it from tooth walls.

With these two cases in one mouth and some other cases where I had knowledge of secondary deposit of dentine, I am led to the belief that this deposit may be the main cause of pressure anaesthesia failures, when we are satisfied that the fault does not lie in the method used, for any pressure method used that does not absolutely confine our solution to the tissue we wish to penetrate will fail. When we know we have not failed in confining the solution and the case is stubborn we may suspect a layer of secondary dentine (which will be penetrated if we persist) or a calcified pulp which does not seem to be affected at all; anyway in any reasonable time.

To produce anaesthesia in a tooth pulp by my method I do not go into the cavity of decay at all in many cases, but make a small hole through the enamel at the most available and at the same time least conspicuous point and apply the cocaine with pressure to the tubules of healthy dentine. The solution soon penetrates the pulp, producing anaesthesia that benumbs the whole coronal portion of the tooth; then I can bore into the cavity without pain and uncover the pulp so that I can insure pressing cocaine to the apex of roots. When that is done removal follows immediately. The flow of blood can be checked with extract of the suprarenal gland, or by using it with the cocaine. It infiltrates the pulp and prevents much bleeding. Now these openings through the enamel are made at points, when possible, that will be embraced in the subsequent extension of the cavity for prevention, or for anchorage. In molars and bicuspids I can usually make this opening occlusally. Sometimes I push the gum up a little at neck of tooth and make the opening there. The selection of this point I believe often obviates the delay caused by secondary dentine. Whatever way you may get in and affect the pulp a little, you will find you can then cut in in any part of the coronal portion of the tooth with no pain. In a clinic before the Illinois State Dental Society at the last meeting, we failed for fully half an hour to get anaesthetic results, but perseverance was rewarded, and when the tooth was opened it was discovered that there was a receded pulp with the chamber walls thickened with secondary dentine.

So we have these difficulties to contend with in pressure anaesthesia, but are they more or worse than the difficulties, in one way and another, we have always had to contend with? I think not; and when we are successful there is no better way or time to get out a pulp than while yet really vital and before any putrefactive changes have taken place, or septic influences introduced. Filling immediately may be done or not as each operator deems best, but it can be done in a day or so at most, almost always, and with no occasion to introduce anything into the tooth that might discolor it we eliminate many chances of the tooth ever becoming dark.

I have diverged some from the subject in describing ways and means of pressure anaesthesia because it is comparatively new, but the way to do it is quite as important as to know that it is the thing to be done. If you agree with the essayist that the immediate removal by some cataphoric process is the thing to do, you want to know how to do it, so I may be excused possibly for the divergence. When the case in hand will permit of the use of a soft rubber plug behind the pellet of cotton saturated with the cocaine preparation —no leaking out—nothing better is needed, but there are so many cases where that procedure does no good at all, because solution leaks away.

Dr. C. S. Stockton, Newark, N. J.—We, as a profession, are not alone in the difficulties which are surrounding us. The lawyers in a measure suffer from similar troubles. Our loved State of New Jersey occupies an anomalous position, being the from another State cannot practice law only State in the Union in which a lawyer without an examination.

A lawyer from Pennsylvania who has been in practice before the higher courts for three years can secure from a judge of that court a letter which he can take with him to the State of New York and have some friend move, on that letter, that he be admitted to practice before the courts of that State, and that is universally done. I mention those two States merely as an example of all others. But in New Jersey a lawyer must pass an examination before being allowed to practice. Our medical friends are in no better condition, for they cannot go into other States under any reciprocal arrangement; they must pass an examination. A very prominent physician within the last few days said to me, "We are looking to you (that is to the dentists) to solve the problem of reciprocity for us." So you see our action is looked forward to with interest not only by dentists but by others.

I brought forward this morning in a measure a scheme which I thought might be a successful solution of this vexed problem, and some of you heard it, but it will not hurt you if I repeat it tonight, and those who were not here may possibly be interested. Let us take the familiar case of Dr. Osmun who is known to us all favorably and well. He has gone to California; suppose that he desires to practice dentistry there. Under my plan I would say to him, "You shall come before the Board of Examiners of the State of New Jersey and obtain from that Board a certificate, not taking the old one you got years ago, but taking one now, stating the fact that you are a reputable dentist, that you have been in practice for twenty-five years or more and that you are a good citizen." Dr. Osmun would then take that certificate to California, deposit it with the Examining Board of that State and ask for the privilege of practicing there. My point is that those gentlemen of California, knowing the character of the Examining Board of New Jersey and the high standard they maintain, and the kind of men they turn out, and knowing that the certificate given by them to Dr. Osmun is something like a letter of introduction, will look at it in that light and say, "The New Jersey Board has given to Dr. Osmun a certificate of his character now, not one of years ago, but he is all they say at this time, and, as a matter of courtesy, he has the right because he has gone through all the preliminary and necessary examinations and qualifications, to practice dentistry, and he ought to have the right to go and practice, if he knows how, wherever he pleases over this broad land."

That seems to me to be a movement which can be carried out, I do not see why it cannot be. It seems to me a much more feasible plan than that of asking the legislatures to pass a uniform amendment, which I doubt very much the practicability of doing. It seems to me there is nothing in the way of accomplishing my plan and the New Jersey Board would be glad. if any one came to it with such a qualification as I have mentioned, to say to him, "Come into our borders, practice dentistry and we will extend to you the right hand of fellowship."

Dr. Emory A. Bryant, Washington, D. C.—This question came up nine years ago, the first time I had the pleasure of meeting with the New Jersey Society. I was then talking of just what my friend, Dr. Stockton, has been talking tonight, reciprocity, and I can say that I agree thoroughly with all of the gentlemen who have preceded me.

I have had a little experience in my life in this very line and the nine years that have passed since my first appearance before this society have not changed my ideas very much. Dr. Kirk's idea is very fine and would be practical if it did not hit the commercial side and furthermore if it did not legislate out of office some gentlemen who hold offices. Dr. Ottolengui's idea finds trouble in the same line. He said if the National Board of Dental Examiners would do so and so, they could get the law. The National Board of Dental Examiners will never do that, they might legislate themselves out of office if they did.

If you want a movement of this kind to succeed you must get the men of the different States interested in the subject, outside of the colleges and the Boards of Examiners. If you want any action taken you must get new men at the helm. They have been talking the same thing for the last ten years, ever since the National Board of Examiners was organized, and they have not done a thing. We have had reciprocity in New Jersey and in New York and that has broken up, practically. You have had reciprocity with other States and that never amounted to anything. Why? Because you have [illegible] for some Board of Examiners to take the matter up. I have never seen a man in my lifetime, since I have been in dentistry, who had an office and wanted to get rid of it. Office holders hang on like grim death.

Dr. Osmun has gone to California, if I mistake not the Board of Examiners of the State of California would require him to pass an examination today after perhaps twenty-five or thirty years' practice, just as they would require it of a young man just coming out of school. The certificate from the State Board of New Jersey would have absolutely no effect except, as Dr. Stockton says, as a matter of courtesy. If they would accept these things as a matter of courtesy it would be all right, but they will not, and the same commercialism comes in again. "We don't want you to come into competition with us, if you are a good man in the State of New Jersey, we don't want you in our State, you will take something away from us." I was told in the city of New York by a man who stands as high in the profession today as any man in that city, that New York did not like new dentists, and that if a certain dentist came there he would not receive any aid whatever. Why one additional man in the great city of New York would be like a grain of sand thrown in the ocean, there would be a little ripple and that would be the end of it.

If you have any idea of getting reciprocity throughout the country you must take hold of new men who are willing to work and let them get out and hustle; let them appear before the State legislatures and you may get what you want but you will never get it from the colleges, through the State Boards of Examiners or through the National Association of Dental Examiners.

Dr. A. W. Harlan, Chicago, Ill.—I have been listening to the discussion that has taken place this evening and it seems to me that under the constitution that we live under and the rules that govern our States, the only feasible method is to have amendments to our present dental laws. If we have uniform laws throughout the country so that the standard would be practically the same, we might have interchangeable certificates.

Some of you know that in Switzerland, which is divided into a number of Cantons, a man is not permitted to practice throughout the entire country. Certificates are issued for the canton of Geneva, or Lucerne, or whatever the name of it may be, while in all foreign countries the requirements for practice are becoming so that examinations have to be taken in the language of the country, and furthermore men cannot take examinations unless they have the qualifications of an A. B. or B. S. or Ph.B. or Ph.D. degree; so that very shortly all Americans who desire to practice in any foreign country will have to attend their schools and pass their preliminary requirements for entrance into their schools. In the United States, while it would be very desirable for a gentleman in New Jersey to practice in New York, if the standard is not the same for examination or with reference to the recognizing of diplomas I think the State police regulations will still be maintained. Courtesy might be abused. In some States, Boards of Examiners are appointed without reference to their fitness for holding such positions. I was a member of the first Board of Examiners in the State of Illinois, appointed in 1881, and I served for five years and later was again a member and we had applications for registration of certificates from States, many of which were new, and as we found out were not based on proper requirements at all. There were certificates which were bought and some which were given on such slight examinations that it would have been an injustice to the people of the State in which I resided for our Board to extend any courtesy to the holders of such licenses.

Dr. James R. Piper.—Case I: Some few years ago I had occasion to restore a lost lateral, on the left side, and in looking about to see how this restoration was to be made I was at a loss to find a particular system that would apply to this case. Gold bands are unsightly, and backings cemented to the palatal surface of the teeth on their side of the space, has its objections. I decided upon a bar. Of course in inserting a bar with a tooth attached, it is somewhat difficult to make the attachment and make the tooth secure, and at the same time permanent. So it occurred to me that Dr. Shaw had worked out a little appliance in the form of a bar bridge which is made from a common plate tooth, with vertical pins. The artificial tooth is backed up in such a way as to make a slot running horizontally across it. In this slot is carefully fitted a bar of iridio-platinum of the right width, and a hole is drilled through the backing and bar. In that hole threads are cut and a screw made to fit. Then the bar is taken off from the bridge and the cavities (there happened to be cavities in these teeth) so shaped as to permit of securely fastening the ends of this bar; the tooth is taken off from the bar and the bar cemented in place, the cement being cut out as the work progressed for the gold filling, which was the permanent retention. After the bar had been securely packed about with gold, the slot in the backing of the tooth was filled with cement, the tooth set on the bar and the screw adjusted. In this particular case this seemed the best method for restoring the lost tooth.

Case II: The second case which I will report was a molar crown in the mouth of a lady whose teeth were somewhat conspicuous. The idea was conceived of making a wide band, just as you would for a gold crown. In the band is burnished a piece of very thin platinum (such as you would use for a matrix), allowing the platinum to come over the periphery of the gold band, thus making a little shelf to hold the porcelain from being forced into the gold band. The platinum band is removed from the gold band and porcelain cusps, made from high fusing body, baked into the platinum band, scoring the body on the under side, for retention. I have inserted them without scoring the porcelain. Then after the band is set the porcelain cusps are carried to place in cement and the teeth brought together and firmly held for ten or fifteen minutes. That worked very satisfactorily.

Case III: When Jenkins's porcelain bodies came out I had occasion to make a temporary cap for a bicuspid. I wanted to do it quickly and as gold was unsightly, I thought the appearance could be relieved by baking the cusps of Jenkins's porcelain body directly into the 22 karat band. While a very strong body for porcelain inlays, I had doubts about this being strong enough for cusps. This method was used, however, and the cusps have withstood the stress of mastication.

The same method was used on molars and bicuspids, i. e., the Jenkins body baked directly into the 22 karat band. Whether I shall be sorry for doing this I do not know. They have been in use two or three years.

Dr. R. H. Hofheinz, Rochester, N. Y. —The question of education will always remain a fruitful text for unlimited discussion for any gathering of this kind.

I have been asked to discuss the paper of our worthy President, but after looking over the epitome he sent I could find little to discuss. My views coincide so much with Dr. Patterson's that I can only reiterate his opinions and recommendations in my own language.

The Doctor divides his paper into two great halves: The deficiencies which arise (1) from a lack of education before entering college: (2) from faulty instructions after having entered college.

To accept students of inferior preliminary education is the greatest fault I can find with all our dental educational systems. This question alone should suffice for a good long essay. No additional years of college or university teaching can compensate for the defectiveness of early intellectual training.

The Germans demand nine years of gymnasium before they consider the mind ripe for university lectures. The introduction of a four years' university course can never compensate for early deficiencies. The mind must have proper shaping in youth to form an intellectual storage battery for our university teachings, and I am almost inclined to think it more important for dental students than for any other. Most of the scientific studies require a cerebral effort only; whereas, in our case, the manual, the technical development consumes much of our college time. It is the early part of life which is a period of plasticity, a period of adjustment—of a physical adjustment—and then an adjustment on a larger and broader scale.

N. M. Butler says, "There are in the United States no obstacles interposed between the college and the university. We make it very easy to pass from the one to the other; the custom is to accept any college degree for just what it means. We make it equally easy to pass from one grade, or class, to another, and from elementary school to secondary school. The barrier between secondary school and college is the only one that we insist upon retaining."

Gentlemen, it is, however, not only the quantity of preliminary knowledge which proves a telling factor in our dental education; it is the quality which our president has well emphasized.

Three years ago I chose this question for a paper before the National Dental Society. My opinion on this subject remains unchanged and I take the liberty to quote from aforesaid paper:

Manual Training: "I make the broad statement that a student who under favorable conditions has not developed some manual skill at the age of eighteen—the time for college entrance—does not possess the physical requisites of a good dental operator. In my estimation we should be in position to judge the physical the same as the mental equipment of the dental student previous to college entrance. The student who is not naturally endowed with a reasonable amount of manual ability will never become the dental operator so much needed."

Manual dexterity is but the evidence of a certain kind of mental power, and it should go hand in hand in its early development with that of the mind. This education belongs to the secondary schools, and if this quality is insisted upon as a preliminary requisite, the possibility of unfitness during college life, of which Dr. Patterson speaks, is reduced to a minimum.

Professional Ethics: Much stress is laid in Dr. Patterson's paper upon the fact that professional ideas are not sufficiently taught in colleges; that the teachers are lacking in the proper spirit of directing the students toward professional honor and ethics. I am of the opinion that you may teach ethics in dental colleges to a large number of students until

Doom's day without accomplishing the desired result.

Why? Professional instinct, reverence for scientific achievements, the proper feeling for ethical culture, belong largely to early home training and proper, elevating environments outside of a college. The young man, endowed by Nature with a spirit of commercialism, the predominating characteristic of our time, can never grasp the meaning of professional refinement at the age of twenty, no more than the man who enjoyed "rag time" music only, up to that time, can ever really appreciate the celestial meaning of a Beethoven adagio. The wrong in this direction is usually done, and permanently done, before the student enters a dental college. This, however, does not deny the necessity of ethical teaching in our colleges, and I should consider myself very inefficient in performing my duty, did I not constantly endeavor to lead the student's mind to a proper and correct understanding of professional honor.

There is no better mode of showing proper professionalism to the students than the conduct of your own practice. This is the best object lesson you can give students at that time of life. Nothing will impress the students with a higher regard for professional loftiness than the success which a teacher has to show through the application of these very principles.

All teachings of ethics in the lecture room smack of absurdity and lack sincerity, if not properly sustained by the teacher's own methods in practice. The man who cannot show through his own conduct in life the very pathway to ethical professional success, has no moral right to pose as a teacher.

Demonstrators: The other great fault Dr. Patterson finds in college teaching is the inefficient number, and, often, poor quality of demonstrators. This is certainly a most vital question. A large number of our dental colleges are without endowments, and therefore exclusively dependent upon the income from the students, a condition which necessitates economy and very often in the wrong place.

I would rather have one competent demonstrator in my infirmary than half a dozen incompetent ones. I have often endeavored to settle the relative necessity of one demonstrator to a certain amount of students, but I found it impossible, owing to the difference in the quality of students which each class presents. The consensus of opinion of our demonstrators and myself is, one demonstrator to ten students. I have repeatedly seen one student able to keep all the demonstrators busy which our university could furnish.

There is but one ideal way of teaching and that is to study the individuality of your student and teach according to its demands. If I were rich enough I should create a fund for that purpose and prove to you results such as Froebel has given to the world in his kindergarten system. I never have and never will permit any difference of infirmary practice from my method of didactic teaching. Dentistry is not a very broad profession, but it certainly permits numerous ways of execution. It is utterly impossible, without confusing the minds of beginners, to teach definitely more than one system, and that should be one based on successful and progressive methods. Other operative methods should be alluded to and teaching should thus be cosmopolitanized, but neither the mind nor the hand of a student should be allowed to wander in all directions, without a positive method, which must prove the foundation for all possible future ramifications.

If what Dr. Darby said is true, that "We made better dentists then than now," it is our duty to find the cause of such retrogression. The proper way to reach that end is by such frank presentations of our faulty methods as Dr. Patterson has given us, and by intelligent criticism of such faults.

No profession has made such wonderful progress in a short time as ours. A time for proper assimilation is needed, after which we will replace that statement of Dr. Darby's by one which will tell the world that we are making better dentists now than ever.

Dr. John I. Hart, New York City.—No system is so perfect but that it is susceptible of improvement. The fact that this body of busy men congregate here for no other purpose than the advancement and elevation of dental education is an encouragement in itself, and the most pessimistic must admit that if faults exist they have only to be recognized and their causes defined to lead to their correction.

The main difficulty lies in agreeing as to these causes.

In the last few years we have departed so rapidly and radically from early methods of dental education that practically a student of today is trained in a manner along fundamentally different lines from those which formerly existed. That this is not entirely satisfactory those who agree with the address just read must admit. Formerly, prospective dentists were received as students in an office for a certain period of time prior to entering college. This method possessed two advantages; it enabled the experienced practitioner to observe manual weaknesses in the student and to tell him and those interested in him of the advisability of his choosing another calling. It also gave the student more and greater individuality than is possible today. In this way the weeding process commenced before the student was committed to dentistry as his permanent life work.

Need of Manual Training: The number of students precludes the possibility of continuing on these lines and present methods of education have supplanted the older ones, but it throws a responsibility on dental educators which they must not and cannot shirk. Your essayist says truly that the first fault is in accepting students of inferior preliminary requirements. This proposition must be regarded in its broadest sense; we are hide bound as to the prospective student's minimum literary education, but nothing is said as to his or her manual dexterity. So long as the standard of admission into the educational department of a profession which is mechanical as well as theoretical is purely literary, so long will we have a large proportion of disappointments and failures. I would rather teach a student of ordinary literary ability, but trained manually, than a Master of Arts with no manual training. With as much reason should a professor of chemistry be expected to teach a student arithmetic so that he should be able to work out a chemical equation, as that the departments of operative and prosthetic dentistry should be required to find out, after a student has been duly entered, whether he has the manual ability to perform his required work. No extension of the number or length of courses will stand in lieu of entrance requirements.

The records of our school will show that we have in several instances advised students against continuing to study dentistry, and in some instances absolutely refused to permit them to continue with us, but how much loss and chagrin could have been saved them, if, instead of finding this out after a waste of time and money they had been stopped at the threshold. I suggest that we require evidence of manual as well as mental training before accepting dental students.

If we can prepare individuals more thoroughly, we will have less ground for fear that they will go wrong ethically. A student who has spent three years acquiring a dental diploma and is then unsuccessful in practice building, has not the moral courage to enter another calling, but, unfortunately, is attracted by methods which he may abhor.

STERILIZING INSTRUMENTS.—The sterilizing of instruments is usually a bugbear to dentists. It is claimed that some expense attends it, and also that a busy dentist cannot take the time. These reasons may be true, but the necessity for sanitary means remains the same.

As a student this principle was firmly implanted in my mind, and this simple and convenient method I have found very easy. May I suggest it to another busy man?

A ring bracket is fastened to the wall, by the side of the cabinet, in which place a heavy glass, to be three parts full of water with one teaspoonful of formaldehyd. This can be easily changed during the day, by pouring the contents into the spittoon, so that the pipes can also be cleansed at the same cost. After using instruments, place them in this solution and let them remain. This is not repulsive to the patients and impresses them with the idea that they are the subjects of cleanliness. After the patient's departure, these instruments can be used as one uses an egg-beater and thus perfectly cleansed, wiped dry, and they are ready for the next patient.

Our experience has been that this care has always been highly appreciated.—Dr. H. A. Jelly, Cosmos.

EDITORIAL NOTES.

Dr. W. H. Whitslar who has been the efficient secretary of the Dental Department of Western Reserve University has severed his connection with that school.

As we go to press we learn with deep regret that Dr. Geo. H. Chance, one of the leading dentists of Portland, Oregon, and the author of Sunshine Thoughts for Gloomy Hours is not expected to live.

At a special meeting of the Faculties Association held at St. Louis, July 18th, it was decided to return to a three years' course in dentistry, the course to be thirty teaching weeks in each year.

Dr. A. W. Harlan who has practiced for so many years in Chicago has removed to New York City.

The faculty of the Pittsburg Dental College has undergone a considerable change during the past year.

Dr. H. E. Freisell is the new dean, and with him are associated some of the best men in that section.

Kester's Alloy is the result of twenty years' experimenting by Dr. P. J. Kester of Chicago. It has been used by prominent dentists for a number of years with so uniformly satisfactory results that it has now been placed on the general market.

It is the only alloy that is tempered and tested to zero. **It neither shrinks or expands.**

Perfect color — great strength — minimum amount of flow under stress — THE MOST PERFECT AMALGAM MADE.

Price: $2.00 per oz. -- 3 ozs. $5.00

For sale by dealers or

DR. P. J. KESTER,

A generous sample will be sent on request. **Masonic Temple, CHICAGO**

PUSTOLENE cures abscessed teeth at one sitting.

We guarantee Pustolene, if properly used, to cure an abscess or putrescent pulp at one sitting

Pustolene has been thoroughly tested and is now used by more than 10,000 Dentists throughout the United States and Canada.

Pustolene is in paste form, always ready to use, and is composed of the most powerful germicides known; will not discolor the teeth and has a very pleasant odor.

Pustolene will, "if used as a pulp capper," relieve an aching pulp in a very few minutes and will return the pulp to its normal condition, there to remain permanently.

Pustolene has gained its reputation solely on its merits and has found its way to all parts of the Globe.

FREE—Upon request we will send free one sample and testimonials of Pustolene to any Dentist who has not had the pleasure of trying it.

For sale at all Dental Depots. Price $1.00—$1.25 in Canada and Foreign Countries.

If your Dealer does not have it, order direct and send us his name.

PREPARED ONLY BY

J. A. SPRAGUE, Columbus, Ohio.

BE DONE WITH EXPERIMENTING.

USE OUR

Paragon Anti Glaze Strips and Disks

n all Grits and Widths to suit Operator and in following Brands:

Samples Free for the Asking.

Paragons, best 2100 linen waterproof, 50c a box, $4.50 a dozen.

Badgers, equal to any common strip at any price, 30c a box, $3.00 a dozen.

Mercurialized Amalgams, especially for Amalgam fillings, 50c a box.

Anti Glaze Disks, either extra thin or ordinary weight, 10c; $1.00 a dozen.

If your dealer has not our goods in stock as yet order direct.
Be sure to ask for our pamphlet on strip and disk manufacture.

PARAGON DENTAL MANFG. CO.,

Originators and Sole Manufacturers of Anti Glaze Strips and Disks. **RACINE, WIS.**

"It didn't hurt a bit!"

WHY?

His Dentist gave him

"Antikamnia & Codeine Tablets"

When to Use Them

FIRST

To ease the nagging and shooting pains while operating; to quiet the nerves, and prevent the headaches and nausea which frequently follow operations, administer one Antikamnia & Codeine Tablet every hour. Give one before beginning operation

SECOND

One Antikamnia & Codeine Tablet given before and another one after extracting a tooth, will stop pain and allay irritability

THIRD

When a painful cavity exists, or a nerve or root is exposed, administer internally one or two Antikamnia & Codeine Tablets and fill the cavity with the powdered tablet, or apply it freely about the gums

FOURTH

For toothache, earache and facial neuralgia, administer one Antikamnia & Codeine Tablet every two hours until relieved

FOR SAMPLES AND LITERATURE, ADDRESS

The Antikamnia Chemical Company ✠ St. Louis, Mo., U. S. A.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA. DR. A. LAWRENCE TRADE MARK. **AMALGAM.**

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,—2 oz. $5.50,—4 oz. $10,—10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by

AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.

FOR SALE AT THE DENTAL DEPOTS.

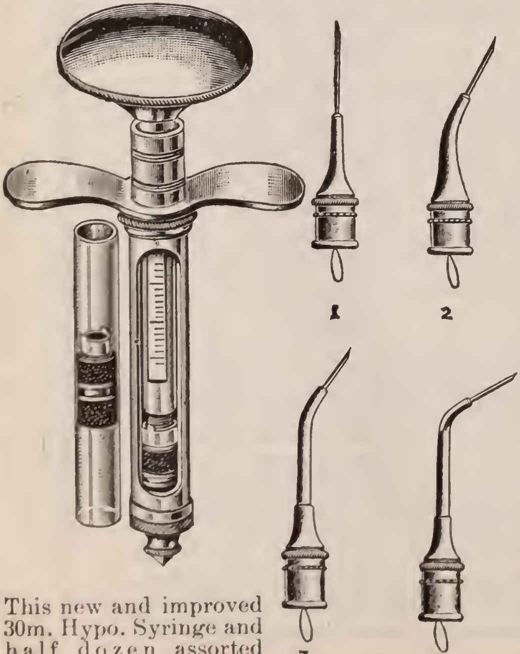
BURS : BURS : BURS : BURS

Sample order of two dozen for **$1.25.** First-class Burs—Stubs Steel, Machine Cut, Perfect Temper. Will give rates by gross or half gross with two-dozen order. Sample on request. Order to-day.

J. J. REED, Beloit, Wis.

BURS - BURS - BURS - BURS

NEW



This new and improved 30m. Hypo. Syringe and half dozen assorted needles by mail, with our complete catalogue for $1.00.

Physicians Supply Co.

Dept. A. Passaic, N. J.

The only Guaranteed non-breakable broach now used by the profession.

THE ACME

Our claim that the Acme is the finest and toughest nerve extractor has not yet been disputed. Remember it is not a reamer, but does the work where the ordinary broach does not reach, viz., in a small or tortuous canal clinging to the side of the walls, and extracting the nerve without any danger of breaking the broach. We are so convinced that they will prove satisfactory that you can return them and have your money refunded. **GET THE ACME.** Price $1.00 per dozen or $9.00 per gross. For sale by all dental depots or the sole manufacturers.

We also manufacture the Rex—a broach similar to the one they charge $2.50 per doz. We will also guarantee this to be equal to it at $1.50. Simply give us a chance to show you on two kinds of nerve extractors—The Acme and Rex—and we are certain to have you for our regular customer.

We take Scrap Gold and Filings in exchange allowing highest market prices.

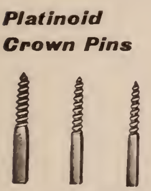
St. Louis Refining Co.

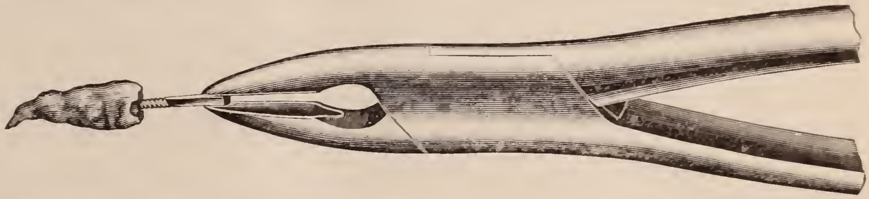
118 East 116 Street, New York

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary.*





Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

Is Your Plate Work
A BURDEN TO YOU?

IF SO——————

Mail us your impressions and wax bites. for we have achieved remarkable results in constructing mechanical work correctly. Doctor and you may as well derive the benefit of our experience. If you have ever hesitated to send out your laboratory work you need not in the future have any doubts as to its safety, for your work would receive the same amount of care and attention as it would if you had it in your own Laboratory. Try us and be convinced of our ability to do work as it ought to be done. Is your business a little dull? Let us boom it for you. Remember, that your prosthetic work is your representative, and talks to the people. Is it not satisfaction to see perfect results, and why, because we take pride in each and every case produced.

HERE ARE SOME OF OUR PRICES

all material furnished

GOLD CROWNS	
Incisors	$1.50
Bicuspids	$1.75
Molars	$2.00

BRIDGE TEETH	
Incisors	$1.25
Biscuspids	$2.00
Molars	$2.25

RUBBER PLATES	
S. S. W. & Justii	$3 00
Consolidate Sibleys	$2.75
Frink & Young	$2.50
Pinless	$2.00

We return completed work the same day we receive it.

We furnish upon application strong mailing boxes in which your work can be shipped back and forth with all safety.

Write for our new wooden Mailing Boxes, 2 sizes, large enough to hold impression cup and bite for plate work and a smaller size for crown and bridge work.

DRS. CHRISTOPHER & GOLBECK

39 STATE STREET, CHICAGO

You Want the Best

Dr. Gilmore's
EXCEL LOCAL ANAESTHETIC

For absolute painless extraction. Safest and best. Thoroughly Antiseptic.

Price 2 oz. $1.50, 6 oz. $3.60, 10 oz $5.00

This Anaesthetic is acknowledged by every Dentist who has tried it to be superior to all others on the market.

ABCESQUE

A positive and permanent cure for all abscesses and a fine root canal filler

In $1.00 and $2.00 packages.

EXCEL GOLD STARTER

For starting gold fillings. Saves time, pain and strain on the eyes.

In $1.00 and $2.00 packages.

EXCEL DEVITALIZING PASTE

For painless devitalizing of nerves.

Price $1.00

ANTI-STRANGLE

To prevent strangling when taking impressions. Insures a perfect impression.

Price $1.00

LOCALINE

Is a strictly local anaesthetic and applied to the gums on cotton.

Price 1 oz. $1.00, 4 bottles $3.00, 8 bottles $5.00

PULPINE

Successfully saves inflamed and aching pulps.

Price $1.00; Powder or Liquid, 50c each

OBTUNDINE

Successfully obtunds sensitive dentine at once.

Price $1.00

The greatest advertisement a dentist can have is to assure his patients ease and comfort in the dental chair; price is no object and they will go hundreds of miles to have them do their work.

The experience of thousands of dentists who are using our preparations is that they are the best they ever used for what they are made to do.

READ ☞ **As our goods stand on their merits we will send any one of our preparations in full size package to any dentist on receipt of 50 cts. to cover postage and packing or all of them on receipt of 50 cts. for each one sent for, or we will send them prepaid on approval for the price given; considering this a better method of advertising than in the Dental Journals or sampling, knowing that it will make the dentist and his friends customers ever after.**

If your dealer does not keep them, send to us for them and send us his name.

We refer you to any dental depot in N. Y. State as to our integrity and fair dealing.

MANUFACTURED

EXCEL CHEMICAL COMPANY,

1559 BROADWAY, BROOKLYN, N. Y., U. S. A.

SOLD BY LEADING DENTAL DEPOTS

STYPTICIN

In Stubborn Local Bleeding.
A convenient, effective and
prompt **HEMOSTATIC.**

Marketed as Powder and 3-4 grain Dental Tablets.
Interesting reports will be mailed to Dentists on request.

Cocaine Hydrochlorate Merck

Large Crystals, Small Crystals (flakes), and Powder.

A product of the highest possible degree of ***Purity,*** answering the severest tests, yet costing no more than other Cocaine Hydrocholate.

The Merck Products can be obtained of all dealers.

Merck & Co.

NEW YORK **ST. LOUIS**

DeBow's Nerve Capping and Root Canal Filling

Used in Capping Live or Exposed Nerves

This nerve capping is one of the greatest boon for the dentist ever discovered. It enables the operator to handle with ease all cases of exposed or sensitive nerves. It is just what its name implies, a paste nerve capping to cover the nerve preparatory to filling. It does not kill the nerve but leaves it in a good healthy condition. Why kill nerves when you can cap them with better results. One bottle will cap about two hundred nerves. Try a bottle and you will have no further trouble with exposed nerves, or no more nerves to kill.

TESTIMONIAL.

I find the DeBow Nerve Capping will do all you claim for it. I consider it the finest thing in my cabinet and would not be without it. Yours respectfully,

F. R. Deming, D.D.S., 207-8 Bamlet Bldg., Detroit, Mich.

Ask your dealer for it, or price by mail $1.00, large sized bottle.

DR. S. W. DEBOW, DENTIST
LINDENVILLE, O.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Cavity Cap Discs, and who also carry a general line of Dental Goods at popular prices.

Price of subscription, per annum, 50 cents; foreign countries, 75 cents. Lowest advertising rates of any journal. Write for prices. Address,

THE TEAGUE SUPPLY CO.,
222 JACKSON ST. AUGUSTA GA.

ADRIAN S. RUTHERFORD
Manufacturer of and Dealer in Dental Supplies
289 PLEASANT AVE., NEW YORK CITY

When at the Dental convention at St. Louis do not fail to see our exhibit. It will include a line of prophylactic instruments, scalers and trimmers, made from patterns furnished exclusively to Mr. Rutherford by some of the advanced workers using such instruments. Mr. Rutherford expects to give demonstrations for one hour each day on different methods of crown work, introducing the latest improvements made by himself and others. Free samples of our goods will be distributed.

Dr. Abraham's
Oxyphosphate of Zinc Cement

Made in Germany

5 COLORS White Yellow Light Yellow Grey Light Grey

PRICES	
Per Box, - -	*$1.50*
Extra Liquid, -	*75c*

QUANTITATIVE PRICES	
6 Boxes, - -	*$7.50*
12 Boxes, - -	*13.50*

GUSTAV SCHARMANN

Sole Importer

1181-83 BROADWAY, - - NEW YORK, N. Y.

MORE CASH FOR OLD GOLD

We Will Give You More in Cash

for your Gold and Platinum scraps and filings than you can get for it in trade.

We have been smelting and refining for twenty-two years, do a very large business and have the most improved and economical facilities for handling Old Gold, Platinum, bench sweeps, etc.

You Take No Risk

We send draft on receipt of every shipment, small or large, and hold same in its exact condition until we hear whether the amount is up to your expectations; if not, we return it, express prepaid. Could any proposition be fairer?

We are sure that if you send one shipment you will send them often.

You can also send us the accumulation of rubbish around your work-bench if you think it contains any gold, and we will give you its value in cash after deducting our small refining charges.

TWO LARGE REFINERIES

WENDELL & CO.

93-95-97 William St., NEW YORK
57 Washington St., CHICAGO

EXTRA PLIABLE BURNISH GOLD CYLINDERS

1-16 oz., $2.25; 1-2 oz., $17; 1 oz., $34.

Pure Gold Cylinders **Gold Ropes**	**Fine Gold Foil**
1-8 oz., $4; 1-2 oz., $15; 1 oz., $29.	**1-8 oz., $3.50; 1 oz., $27.**

Our Extra Pliable Burnish Gold Cylinders have proved a great success. They work almost with the facility of plastic gold, are very valuable in frail teeth, being very cohesive yet soft and pliable, requiring less pressure to pack densely. Better everywhere than any other form of gold.

Morgan, Hastings & Co.,

817.821 Filbert Street, PHILADELPHIA.

WM. HAHN

220 WASHINGTON STREET, CHICAGO

Manufacturer and Repairer of

Dental Instruments and Specialties

BROACHES

Barbed ½ doz. 50c.

Progressive ½ doz. 75c.

The Old Reliable—all kinds and sizes. The best that skill and study can produce. Try the "Progressive" (Screw-Cut) for small and difficult canals.

Superior Dental Finishing Strips

Registered August 12, 1902, No. 9364

CARBORUNDUM—Made in three grits; Coarse, Medium, Fine, and in three widths: Broad, Medium, Narrow, or Assorted, as desired, seven inches long.

DIAMOND—Made in one grit only, and is for finishing and putting the final polish on the filling.

35 cts. per box of one gross or three boxes $1.00

A Free Sample for a postal card

Superior Dental Strip Co.

WATERLOO, N. Y.

Good Stationery
Is Good Advertising

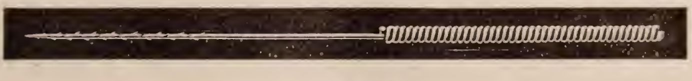
BUSINESS AND SOCIAL
STATIONERY AND CARDS
WEDDING AND BUSINESS
INVITATIONS AND ANNOUNCEMENTS

Samples and Quotations willingly furnished

The American Embossing Co.,
10-16 LOCK ST., BUFFALO, N. Y.

"DAYTON BROACHES"
(INDESTRUCTIBLE)

ARE THE BEST
THEY CANNOT BREAK



STRAIGHT

THEY ARE EFFICIENT

SPIRAL

DO YOU USE THEM?

TAPERED

Price, All Styles, All Sizes, $1.00 Per Doz.

DAYTON DENTAL SUPPLY COMPANY
S. W. Cor. 5th and Jefferson Sts., Dayton, O.

When a comparatively new material can SUPERSEDE the old standbys in the practice of EXPERIENCED DENTISTS, the argument resolves itself into a single word,

MERIT

This is exactly what RAMESITE CEMENT is doing.

The hundreds of dentists who have tried RAMESITE CEMENT, thus far, have duplicated and continue to duplicate their orders.

After you have tried all other cements
Try Ramesite

After all other cements have failed
Try Ramesite

If you have a piece of bridge work that persists in coming off
Try Ramesite

If you have a Logan or Richmond crown to set
Try Ramesite

If you have to fill a broken down molar—nothing but the walls of enamel left
Try Ramesite

If you have made a nice porcelain inlay and wish it to remain "A thing of beauty and a joy forever"
Try Ramesite

If you wish a durable filling
Try Ramesite

In filling children's teeth
Try Ramesite

In a wet cavity
Try Ramesite

If you are careless in the manipulation of your cement DON'T
Try Ramesite

RAMESITE is not a Careless Man's Cement.

Price per Package of Two Colors, $1.50. Write for Free Sample Package.

Manufactured ... by **H. G. KNAPP,**

219 SIXTH STREET, - - - PITTSBURG, PA.

CHAUNCEY A. FLOWER'S

New Process Gold Cylinders

Is Guaranteed to be the best all-round Dental Gold in the world

Five reasons why YOU should give it a trial

FIRST—Because it is the purest Gold on the market.
Second—Because it is the easiest working Gold.
Third—Because it is perfectly adapted for any kind of filling.
Fourth—Because it requires NO ANNEALING.
Fifth—Because it requires no special kind of Instruments.

It is soft and cohesive, but when properly condensed contours perfectly, finishes hard and takes on the finest polish.

In fact is just what all good Dentists are looking for.

The best Quality and Easy Working combined.

PRICES--1=16th, $2.00; 1=8th, $4.00; 1=2 ounce, $15.00; one ounce, $30.00. Cash must accompany all orders.

C. A. FLOWER, 145 S. McKean Street, Kittanning, Pa.

Gold Bullion White Alloy

Manufactured by J. B. Z. Roberts for the past fourteen years, has never been extensively advertised, yet it is now being used by more than FIVE THOUSAND dentists.

This Large and Steadily Increasing Sale has been Created by the Merit of the Alloy

GOLD BULLION ALLOY has Edge Strength, Natural Color and Durability unsurpassed by any Alloy on the market.

It does not Discolor; does not Shrink; does not Expand; does not Crumble.

It amalgamates quickly and can be polished at a single sitting. It is positively Free from Grit. It is guaranteed — you may return any portion of an order and we will refund your money promptly for the same.

One Ounce	$2.00	**Ten Ounces**	$15.00
Three Ounces	5.00	**Twenty Ounces**	25.00
Six Ounces	10.00		

A Special Proposition—On the first order we will sell you any quantity at **One Dollar** per Ounce, cash with the order, and we will refund your money for all you return.

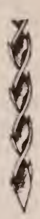
ROBERTS & FOX,

1202 WALNUT ST., KANSAS CITY, MO.

I have used J. B. Z. Roberts' Gold Bullion Alloy for the past eight years and take pleasure in recommending it to the Dental profession as being the best in every particular that I have ever used.

WM. GIRD BEECROFT, D.D.S.

Can Be Tied In a Knot



CAN NOT BREAK

"MILES"

BROACHES

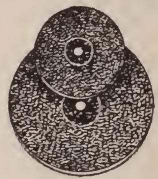
75c. (Patented) $1.00

PATENTED

Price per set of Three, 50c.

The Miles Steel & Tool Co.,
Middletown, Ohio, U. S. A.

Dr. J. C. Graft's New Flexible Singerpore Disks



in Emery and Carborundum, are particularly useful for trimming natural teeth and roots for crown work, for grinding porcelain crowns, inlays, enlarging spaces between teeth, etc. These disks are very thin, rapid cutting, and flexible.

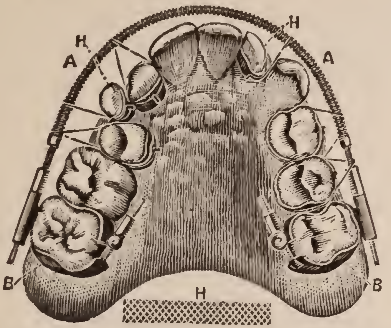
Price per dozen, 25 cents

Terraplastica—A moulding compound—for taking impressions, casting metal dies, for rubber work—for investing gold work—absolutely has no superior.

Other Specialties—Perfect Impresion Varnish—Superior Base Plate—Improved Dental Plaster—Bridge Repairing Pliers—are essential adjuncts to every den laboratory. Send for our Booklet.

TERRAPLASTICA MFG. CO.
5 W. PARK ST., NEWARK, N. J.

Parts "A-B-H-G" are used in this case.
Price, including wrench, $3.00



The Arch in above cut stands further from the teeth than in an actual case. This is done to better show the Arch and Ligatures.

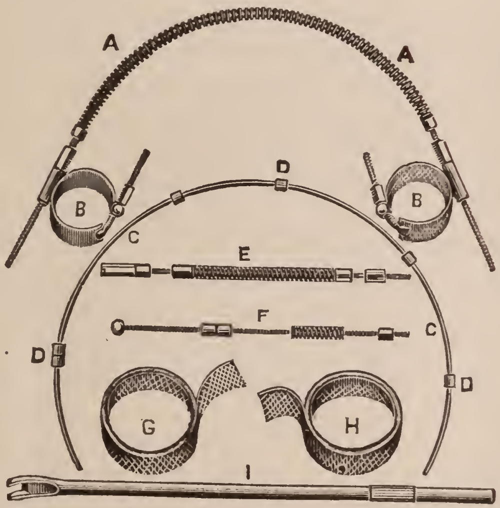
The J. E. Canning

Improved Regulating

AND

Retaining Appliance

This cut shows the combination most used, not only for enlarging the Arch, but for individual tooth movement. The portion of the Arch which surrounds the anterior teeth is fitted with a **Removable Spiral Jacket,** which retains ligatures at any angle from the moving tooth. The Arch can be used with or without this Jacket as the case may require.



Price $5.00

PRICE OF PARTS:

A	Expansion Arch	80c.
B	Adjustable Clamp Bands, each	80c.
C	Retaining Wire	30c.
D	Retaining Tubes (6)	30c.
E	Elastic Pressure Jack Screw	80c.
F	Elastic Tension Traction Screw	80c.
G	Indented Band Material, .004	25c.
H	Indented Band Material, .003	25c.
I	Wrench	15c.

The Improved Jack and Traction Screws, as seen in the complete set, exert a **Constant, Uniform** and **Elastic** pressure against the moving tooth, and when once adjusted, positively need no further attention. The nuts all remain **Stationary,** the spring follows up **Automatically** the moving tooth and also acts as a **Positive Nut Lock.**
All Band Material is **Rough** or **Indented** and will never slip from the cement.
Booklet containing full instructions for attachment comes with all parts.
Appliances adjusted to models.

ASK YOUR DEALER OR WRITE TO

J. E. CANNING, P. O. Box 869, Denver, Colo.

The attention of the Dental Profession is called to

SOZODONT
Tooth Paste

Established 1848

HALL & RUCKEL
New York City

which has recently been placed on the market. It combines in a single form the fragrance as well as the antiseptic, alkaline and astringent properties of Sozodont Liquid with the smoothness of Sozodont Tooth Powder, a characteristic which has won the latter much commendation from dentists throughout the world. Moreover it will neither harden or decompose, qualities possessed by few of the pastes offered to the public.

A sample will be cheerfully forwarded to any dentist upon request, together with analyses of Sozodont, and our pamphlet entitled "Sozodont in the Dental Office." Correspondence invited.

THIRD SERIES
VOLUME XXXV THE OLDEST DENTAL MAGAZINE IN THE WORLD OCTOBER 1904
NUMBER 10

THE AMERICAN JOURNAL OF DENTAL SCIENCE

ESTABLISHED IN 1839

AN INDEPENDENT DENTAL MAGAZINE PUBLISHED BY DENTISTS FOR DENTISTS.

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D.D.S. MADISON, WIS. U.S.A.

When You are Ready

to subscribe for the dental magazines you wish to take next year, drop us a line stating those you will want and we will be glad to quote you our rates on them.

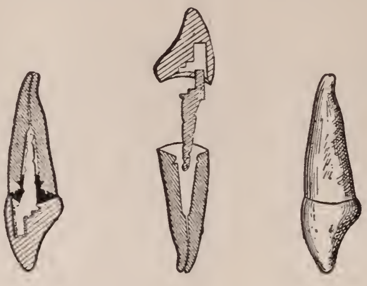
We shall be pleased to answer all letters of inquiry.

If you subscribe now, the remaining issues of this year will be sent you free.

WM. GIRD BEECROFT, D. D. S.
MADISON, WISCONSIN

The Whiteside Crown

(Patented March 17, 1903, February 9, 1904)



A PERFECT TOOTH CROWN

Strongest, - Easiest to Adapt,
Widest Range of Adaptability

Ever see a **Lower Bicuspid** porcelain crown, fashioned after the shape of Natural lower bicuspids, ready to mount without grinding to death?

The **Whiteside Crowns** include an assortment of these among a full line of Incisors, Cuspids, and Bicuspids, of natural shapes and life-like translucency and shadings.

The bases of all Whiteside Crowns are so shaped that grinding is reduced to the minimum.

Booklet--A Treatise on Crown and Bridge Work--sent free on application.

The Whiteside Dental Man'f'g Co.

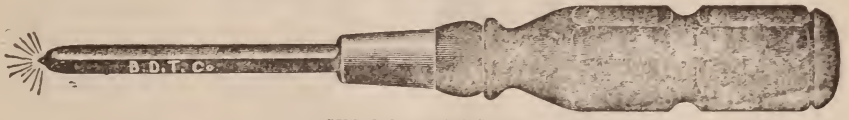
(INCORPORATED)

DENTAL SPECIALTIES. YOUNGSTOWN, OHIO, U. S. A.

A Diamond Drill with a Point

Made from carefully selected stones, diamond fully exposed. and **actually centred.** We guarantee the **setting** and the accuracy in which they run. Especially adapted for drilling retaining points in porcelain teeth and Etching Inlays. Price, **$2.50.**

SAVE MONEY



CUT ONE-HALF SIZE

Don't throw away your grinding stones, but true them up with one of our **DIAMOND TURNING TOOLS,** and as a matter of fact they will cut better than they did orginally. Price, **$3.00.**

Our Cavity Shaper, being heavily charged with diamond dust, will be found very valuable in shaping cavities in artificial teeth. Should be run wet. Price, **60 cents** each.

Our Diamond Disk, being heavily charged with diamond dust by our new process, will be found very durable, and will cut on both sides as well as on the edge. These disks are very thin and will be found very valuable in separating teeth. Price, **$1.75** each.

Cavity Shaper

For sale by the leading Dental Depots, or sent, on receipt of price, by the manufacturers,

Diamond Disk

BOSTON DIAMOND TOOL CO.,
Nos. 114-116 Bedford St., Boston, Mass.

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass.

UNIVERSITY OF PENNSYLVANIA

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

EDWARD C. KIRK, DEAN,
Dental Hall, Cor. 33rd and Locust St.

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

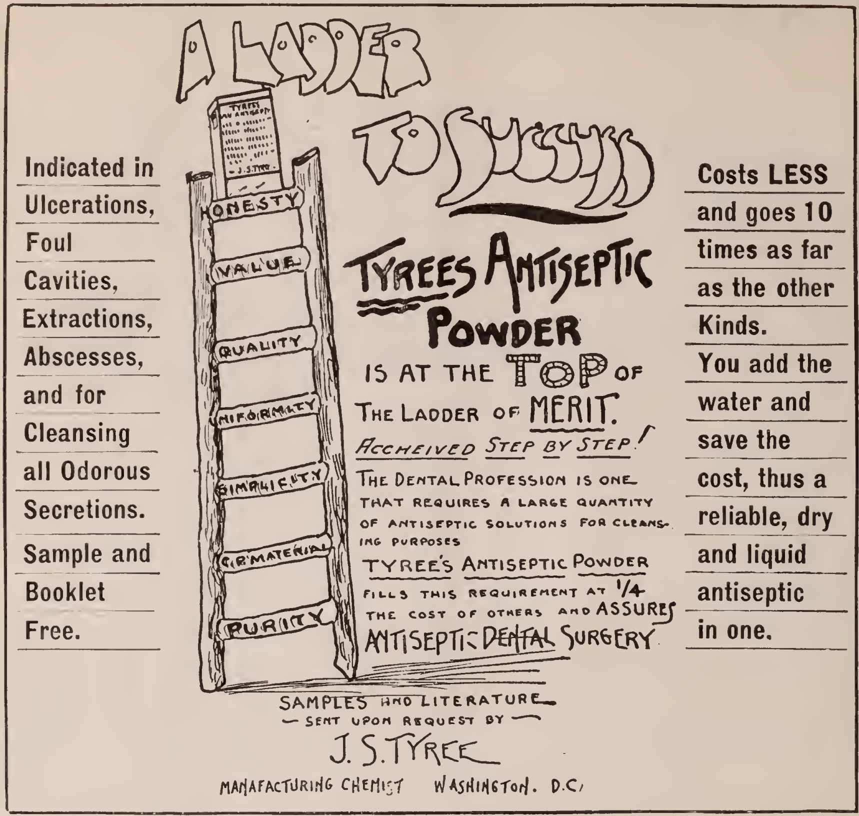
M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903.
Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

WILBER F. LITCH, M. D., D. D. S., Dean,
1507 Walnut St.



Indicated in Ulcerations, Foul Cavities, Extractions, Abscesses, and for Cleansing all Odorous Secretions.

Sample and Booklet Free.

TYREES ANTISEPTIC POWDER IS AT THE TOP OF THE LADDER OF MERIT. ACCHEIVED STEP BY STEP!

THE DENTAL PROFESSION IS ONE THAT REQUIRES A LARGE QUANTITY OF ANTISEPTIC SOLUTIONS FOR CLEANSING PURPOSES TYREE'S ANTISEPTIC POWDER FILLS THIS REQUIREMENT AT 1/4 THE COST OF OTHERS AND ASSURES ANTISEPTIC DENTAL SURGERY

Costs LESS and goes 10 times as far as the other Kinds. You add the water and save the cost, thus a reliable, dry and liquid antiseptic in one.

SAMPLES AND LITERATURE
— SENT UPON REQUEST BY —
J. S. TYREE
MANAFACTURING CHEMIST WASHINGTON. D.C.

TABLE OF CONTENTS.

October, 1904.

PAGE
The International Dental Congress........................ 175
National Association of Dental Examiners........................ 180
Shadow Variation in Porcelain Inlay........................ 181
The Child in Dentistry........................ 183
Incidents of Practice........................ 186
Method of Making Crown for a Difficult Case........................ 188
The Interchange of State Certificates........................ 189
Time and its Value in the Practice of Dentistry........................ 190
Book Reviews........................ 193
Notes........................ 194
Dental Hints........................ 194

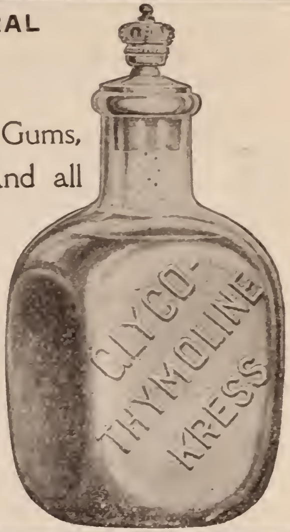
GLYCO=THYMOLINE

IS INDICATED WHEREVER THE ORAL SECRETIONS ARE FOUND TO BE ACID.

In Pyorrhea, Alveolar Abscess, Spongy Gums, Chronic Ulceration, Abscessed Antrum, and all Abnormal conditions of the mouth the **Alkaline Antiseptic** treatment cannot be too strongly advocated.

SPECIAL OFFER.—This Sprinkle Top Bracket Bottle, together with samples for your patients, will be sent free to any dentist mentioning this journal.

Kress & Owen Company,
210 FULTON STREET. NEW YORK CITY.



THE ALKALINE ANTISEPTIC

“THE IDEAL ADJUVANT”

DENTACURA

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties*, than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

SAMPLES AND LITERATURE FREE

ADDRESS,

Dentacura Company,
NEWARK, N. J., U. S. A.

The Best Antiseptic for a Dentist's Prescription

LISTERINE

A true prophylactic

Listerine exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

"THE DENTIST'S PATIENT". An interesting little brochure on the care of the teeth, will be forwarded upon request, together with a new pamphlet of 32 quarto pages embodying:

"LISTERINE UNDER THE MICROSCOPE". A tabulated exhibit of the action of Listerine upon inert laboratory compounds.

"COMPARATIVE VALUE OF CERTAIN ANTISEPTICS". An interesting showing of the comparative value and availability of various antiseptics in the treatment of diseases of the oral cavity.

"EXPERIMENTAL RESEARCHES". A report by members of the Association of Analytical Chemists of the Pasteur Institute, Paris, concerning the antiseptic action of Listerine.

LAMBERT PHARMACAL CO.

SAINT LOUIS, U. S. A.

Be assured of genuine Listerine by purchasing an original package.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE
ESTABLISHED IN 1839

THE OLDEST DENTAL MAGAZINE IN THE WORLD
INDEPENDENT--------PUBLISHED BY DENTISTS FOR DENTISTS

VOLUME XXXV
NUMBER 10
THIRD SERIES
OCT.
1904

EDITOR:
WM. GIRD BEECROFT, D. D. S., Madison, Wis.
ASSOCIATE EDITORS:
ALBERT H. KETCHAM, D. D. S., Denver, Colo
EMORY A. BRYANT, D. D. S., Washington, D. C.
GEO. S MARTIN, D. D. S., L. D. S Toronto Junction, Ontario.
Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.
Address all communications, both business and editorial to the editor
Entered as Second Class Matter, Madison, Wis.

THE INTERNATIONAL DENTAL CONGRESS.

The International Dental Congress held in St. Louis was attended by representative dentists from almost every County, there being in attendance probably two thousand dentists.

Dr. H. J. Burkhart of Batavia, N. Y., was elected president, Dr. B. Holly Smith of Baltimore making the nominating speech.

Dr. Rodriguez Ottolengui of New York placed in nomination for the same office Dr. C. N. Johnson of Chicago, but the latter withdrew.

Dr. E. C. Kirk of Philadelphia was chosen secretary over Dr. A. W. Harlan of New York. Dr. M. F. Finley of Washington, D. C., was chosen treasurer without opposition.

This business having been disposed of, addresses were made by Dr. C. C. Chittenden of Madison, Wis., president of the National Dental Association; Dr. Burton Lee Thorpe of St. Louis, for the dentists of Missouri; by Dr. A. W. Harlan of New York, for the International Dental Federation, and by Dr. Otto Zsigmondy and Dr. R. Weiser, both of Austria, for the foreign delegations.

It might almost be said, that the interest in the Congress as a Congress, died at the adjournment of this session. Thereafter the meetings followed the thoroughly well known and recently abandoned system which so long has marred the National Dental Association.

There were morning sessions of the main body, before which a few papers were read, selected by no previously announced rule. The afternoons were given over to meetings of the sections, and if the ignominious failure of this method of managing a dental meeting, which must be recorded in connection with this Congress, would only result in its final abandonment in this country, at least one great good will have been achieved by this Fourth International Dental Congress, which was International in character, only at one session.

Let us mention a few of the unpleasant features of working by sections, and then discuss the reasons therefor. It must first be recorded, however, that it was reported that no less than sixteen hundred dentists joined the congress. Just how many actually attended was not made known, but probably a thousand; possibly more. Let these figures be borne in mind. The meetings of the section on operative dentistry were held in the main assembly room, and whether for this reason, or not, the sessions were fairly well attended, as many as one hundred being occasionally present. The prosthetic section had trouble from the start, its very first session being adjourned for lack of an audience. On other days the attendance fluctuated between five and forty, the latter being a generous estimate. Yet surely this section, dealing with the every day work of the dentist might reasonably have looked for greater support. The same list of papers, if offered at almost any State society meeting would have attracted from two to five hundred men, according to the locality. The Odontographic Society of Chicago with only five papers, two years ago, had twenty-six hundred.

There were so many delays, waiting for auditors, and the sessions for the same reason were so short, in this section, that at the last there were several important papers by men from abroad, all of which were crowded into one slimly attended session, and read so hurridly that discussion perforce was cut off.

Think of the feelings of the gentlemen who crossed the ocean to read papers, when they found themselves in this great American land, among the men that boast so of American dentistry, to be met, as these were by less than twenty auditors? But there was worse even than this. Dr. Guerini, of Italy, brought into this section several exceedingly interesting examples of prosthetic work, which he desired to show and explain, such as swaged aluminum plates; gold plating on aluminum; soldered aluminum; an exceedingly ingenious spring for use in connection with obturators; but Dr. Guerini never was reached at all, and as he expressed it, he "packed his things and took them back to Italy." It became the painful duty of the section officers to apologize for that, for which there was no excuse, and this was all the more difficult as this same gentleman had brought a paper which he had been especially requested to prepare; a paper which must have cost him endless work, as it included a resume of the literature of dental art in Italy; nevertheless, Dr. Guerini complained that he had on two different days repaired to the proper section with his paper only to find no one in attendance. This circumstance was brought to the attention of Dr. Burkhart, and subsequently opportunity was afforded Dr. Guerini to read this paper.

Dr. E. Sauvez, of Paris, not being able to speak English as fluently as he would have wished (though quite to the satisfaction of the Americans who had the pleasure of hearing him in an after-dinner address at the banquet of the Interstate Dental Fraternity), had his paper not only translated into English, but he assumed the expense of printing it in pamphlet form, bringing with him for distribution among the members, two or three thousand copies. The subject was certainly one of vast interest, "Local Anaesthesia." Yet in spite of the importance of the subject, in spite of the distance he had traveled, in spite of the fact that he was our guest and we were presumably playing host, when the time for reading his paper arrived just four men were present in the section.

But even this record was beaten. Our own Dr. Cryer, whose papers are always fine, brought to this Congress, one in connection with which he used the lantern and showed the finest radiographs of jaws ever seen, including some that were stereoscopic in character. Yet Dr. Cryer was allowed to sit for an hour in his section in the sole companionship of the gentleman in charge of the lantern and the stenographer. Finally, Dr. Ottolengui passed through the room, having been previously engaged in the orthodontia section reading his own paper, and Dr. Cryer invited Dr. Ottolengui to preside, while he read his paper, and this Dr. Ottolengui did, esteeming himself much honored to be the whole audience before which Dr. Cryer was willing to deliver his lantern lecture.

An auctioneer sometimes begins a sale with none present but his own clerks, hoping that the sound of his voice may attract the passerby. And thus it was in this instance. The pictures on the screen caught the eyes of a few stragglers, until a full dozen were present. But as soon as discussion was called, they faded away, and then it was seen that the visitors had been mere gallants with their dames, seeing the sights. They were not dentists at all. Yes, there was one, just one left out of the phantom dozen, and he and Dr. Ottolengui discussed the paper. Was this incident far short of being a disgrace?

Other splendid papers brought over by distinguished foreigners were not even offered, when the authors saw how small their audiences would be.

The orthodontia section was practically a success, though even here the attendanc' never was large. The success here was due to the presence of the members of the

American Society of Orthodontists, who gave almost all their time to this one section. Why? Because orthodontia is the only dental specialty which is really an organized separate speciality of dentistry, and therefore orthodontia is the only field of work which can fittingly be represented by a section.

This brings us to a consideration of the reasons for the failure of the sections. These may be divided into two classes, under the nominations, bad management, and bad method, the latter undoubtedly predominating. Even with good management this section scheme must have shown poor results, though undoubtedly better.

The Fourth International Dental Congress, presumably was projected as a convention at which the dentists of the world might exchange views on subjects relative to their calling. It primarily resolved itself into the finest display of dental goods the world has ever seen. This great show, was continuous, open uninterruptedly from sunrise to sunset, and if there were a thousand dentists at the Congress, about eight hundred were in the exhibit rooms all the time. This left about two hundred to visit the meetings of the ten sections, taking no count of those that went to the World's Fair. Let us pause here to take a note. The World's Fair buildings were closed every evening; thus those that wished to see their interiors were obliged to go during daylight. Yet, the Congress did not have a single night session.

To return to the matter of the exhibits, it has been explained that the exhibitors refused to take space unless permitted to remain open continuously, and at the time of making contracts with them it seemed essential to have them—and their money. There is no doubt that exhibits are an important item in making a meeting successful, and we must not be misunderstood as arguing against exhibits, but we do think that the exhibition of dental goods should be subordinate to the reading and discussing of scientific papers, more especially when we are supposed to be receiving guests from foreign lands. Moreover, we think the end might have been attained, even though it were necessary to give the exhibitors all day in which to show their wares.

Another bit of mismanagement which militated against success of the sections, was the absence of bulletins. A large board at the entrance, containing official and correct announcement of each day's doings, would have helped mightily.

But, after all, the main trouble lay in the system. Seemingly, because medical conventions have sections, it has been thought necessary for dentists to conduct their larger meetings in similar fashion. But there is no logical analogy. The medical world is finally split into definite fields of work, fields in which the worker is exclusively occupied with
tations. A section in surgery attracts the surgeon. A section on gynecology, the gynecologist. A section on chemistry, the chemist, etc., etc. It is quite different in dentistry. The sub-division into specialties is in its infancy. Orthodontia is the only specialty in dentistry, which at present has any real separation, and it is this fact alone which made the section in the Congress devoted to this subject more suc-
dentistry. Yet there are probably not more than fifty orthodontia specialists in the whole United States. In the present state of affairs, then, we should recognize that dentistry is just dentistry, and that the dentist is interested in all that pertains to his work. If imaginary lines be drawn, and men are forced to work in fields separated from the general theme, the workers will be few, even though the work itself may be better; and for like reasons the audiences will be slim.

Viewing a programme divided into ten sections, the plain dentist finds himself at a loss to know which room will offer the most pabulum. He may find several papers in different sections which he would particularly desire to hear, and should he attempt to be present, most likely he will find them all called for the same hour. An actual fact sometimes points a moral better than any argument. A certain dentist had been asked to open the discussion on three papers at this Congress. In each instance his name had been sent to the committee by the essayist; thus each essayist thought this particular man qualified to discuss his paper. It chanced that all three papers were called for exactly the same hour, in three different sections. Of course it was physically impossible for him to be in three places at once, and this is the turning point of the argument. It should not be a physical impossibility for any member of a Congress to hear all of the papers. On the contrary it should be made possible for every man to hear every paper.

It would be manifestly wrong to criticise, without showing a means of improving the method. There is, of course, some good to be attained by section work. Without going too deeply into this phase of the subject, suffice it to say that it assures a diversity of topics. At one time the American Dental Association, worked in sections which were nominal only. Papers were read by title in the sections, and then read in full before the main body. This insured an audience, but it allowed one or two sections to monopolize a whole meeting. The method at the present Congress was the reading of papers before the sections, and each section was obliged to attract its own audience. The evils of this have been, in part, pointed out.

If it be deemed wise to work by sections in the present status of dentistry, the divisions should be as broad as possible. The three section plan, recently adopted by the National, will surely be better than ten. But the reading of papers in sections, and especially if the various sections meet simultaneously, must prove disastrous by dividing the interest.

Let us suppose that in the last Congress there had been three sections, sub-divided if necessary into three parts, or sub-sections, it being understood that these sections and sub-divisions were made merely for the purpose of systematizing the matter to be obtained and offered at the Congress. Suppose a rule requiring all papers to be in the hands of a committee for consideration at least one month prior to the opening of the Congress.

On the morning of the first day, the organization of the Congress. In the afternoon, meetings of the three sections, each to receive the reports of the essay committees; such committees to report all papers received, and to recommend, first papers to be rejected; second, papers to be read by title only, and published in the transactions; and third, papers to be presented to the Congress. As one argument for this part of the method, be it said that much valuable time was spent on papers which should have been read by title only; while some of the best papers were read by title for lack of time, or lack of attendance. On the evening of the first day, the Congress would have been placed in fine condition for real scientific work. This session should have been devoted to papers from Section I. The mornings might have been free, and a meeting of the full Congress could have occurred each afternoon and evening, excepting one evening for the banquet. The sections could have been taken up in rotation (according to this plan where would have been but three sections). Each section could have had two meetings, before the full body. There would have been ample time for clinics. The exhibits would not have noticeably interfered and what is equally important, since thus far all our Congresses have been adjuncts of World's fairs, the mornings spent visiting the Fair, would not have taken the men from the scientific meetings.—*Items of Interest.*

The following were elected as the American representatives on the excutive council of the International Dental Federation: Dr. Burton Lee Thorpe, Dr. B. Holly Smith, Dr. Wm. Carr, Dr. A. W. Harlan, Dr. E. C. Kirk.

The next congress will meet in Berlin in 1909. Dr. W. D. Miller will probably be made the president.

The new officers elected for the National Dental Association were, president, Dr. W. E. Boardman, Boston; vice president from the east, Dr. John I. Hart of New York; vice president from the south, Dr. B. F. Lucie of Hill Spring, Miss.; vice president from the west, Dr. Wm. Conrad of St. Louis; secretary, Dr. A. H. Peck of Chicago; corresponding secretary, Dr. C. S. Butler of Buffalo; treasurer, Dr. V. S. Turner, Raleigh, N. C.

The Fourth International Dental Congress has passed into history, and glorious history it has made. Never in the history of the profession were so many great and famous men gathered together, never were so many really great papers read and discussed, and never was there a better clinical demonstration of methods and ideas. Time and space would fail me were I to attempt a resumé of the entire congress, were I to describe the notables there, the Grand Old Man of dentistry, Dr. G. V. Black, honored and revered by all for his epoch-making labors in the advancement of his profession, and loved by all those who have had the rare privilege and honor of his friendship; Dr. Miller of Berlin, the great bacteriologist of the profession, and hosts of other stars of the first magnitude. Neither can I attempt a synopsis of the papers read, but it will amply repay the members of the profession to carefully study them when they appear in the transactions. Nor can I give even a glimpse of the business meetings of the congress, nor describe the officers who carried off the honors of the congress so efficiently. I can but tarry a brief moment over that part of the congress, that judging from the attendance at its sessions, had the greatest interest for by far the large majority of the members of the congress. I refer to the clinics. The clinical program was carried out in the large gallery of the exposition hall of the great exposition building of St. Louis. The large gallery entirely encircled the great building and gave ample room for all the clinics. A large skylight, running the entire length of the room, furnished an abundance of light. There were operations of all kinds, extractions, fillings of all kinds, porcelain inlays, etc., etc. But again I must confine myself to but a small part of this portion of the congress. A great deal of interest was manifested in the very creditable inlay operations that were made, and porcelain undoubtedly made many friends. But the section of all sections that called forth the loudest encomiums of praise was the section devoted to the Black Club, who were operating under the direction and demonstrating the teachings of that greatest of Dr. Black's pupils, Dr. E. K. Wedelstaedt of St. Paul. The praise that was bestowed upon each operation—and they were endless—was acknowledged by the operator to belong not to the individual making the operation, but to the man who has unceasingly and by making the greatest personal sacrifices labored among the men of the Northwest, for the sole purpose of advancing the art of dentistry and teaching the principles of Dr. G. V. Black. In inspecting the operation of the men of the Black Club one was struck with the similarity of method and technique. As we passed from chair to chair the same method of cavity preparation was observed, the same definite manner of introducing and condensing the gold, and the same method of finishing and polishing the filling, so that one was impressed with the thought, which soon became conviction, that these men were the disciples of one man and that man had a method which he had been capable of thoroughly impressing upon his pupils, so that the finished filling of one man looked as though it might have been made by any other man in the club, and each filling as near perfect as it was possible to make it. One of the greatest educators in the world said, "There are not fourteen other men in the world that could make such operations." Another, almost equally well known, said to the writer, "Those men in the Northwest are making the greatest operations that are being made anywhere in the world." And he added, "It is all due to the teaching and the self sacrificing labors of Dr. E. K. Wederstaedt." Those of us who know something of the great work which Dr. Wederstaedt has done, and is doing, rejoice at the great triumph which he won there. But knowing the modesty of the man, we also know that this is a secondary consideration with him. If the demonstration of the methods which he has been teaching shall cause men to pause in their unscientific methods of operating upon the human teeth, and shall cause them to study conditions, and then with an intelligent knowledge of the structure of the teeth, the causes of their decay, and a knowledge of the physical properties of those materials used for filling the teeth, shall so operate that humanity shall be benefited thereby, he will feel that his labors have been repaid. All honor to Dr. E. K. Wedelstaedt.

It was a great pleasure to meet the representatives of our profession from foreign fields—the men from England, Germany, France, Spain, and other of the old world countries, and men from the southern continent, from the islands of the sea, and from all parts of our own fair land. May the Fourth International Dental Congress be but a small beginning of the many great international congresses that shall follow in the years to come, and may this meeting together of professional brethren strengthen the brotherhood of nations so much that it shall be a potent factor in causing wars to cease, and internal social questions to be relegated to the rear.

J. V. Conzett, D. D. S.

Dubuque, Iowa.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

At the annual meeting held in St. Louis the following officers were elected: President, Thos. J. Barrett, Worcester, Mass.; vice president, of the West, Frank E. Moody, Minneapolis, Minn.; vice president from the South, F. J. Shotwell, Rogersville, Tenn.; vice president from the East, C. Stanley Smith, Cincinnati, O.: secretary and treasurer, C. A. Meeker, Newark, N. J.

At a meeting of the Faculties Association held in St. Louis during July, a new rule was adopted in regard to the length of the teaching terms. During the International Dental Congress a great deal of hysterical condemnation of the Faculties was heard because of this "retrogression." It was freely stated that it was a disgrace to American dentistry, for the schools to change from "A four year course of study, to a three year course." Will these gentlemen object if we ask them bluntly, "Why?" And will these immoderate talkers also tell us how it happens to be the concern of the general practitioner who is not connected with any school, whether a dental college takes two or ten years to educate a student? If we reason to a logical deduction, is not this matter of time, exclusively the affair of the contracting parties, the college and the student?

Time! Time! Time! Always Time, as though the length of a term were a true measure of the quality of the education imparted. Is it not conceivable, nay is it not a fact that there are at present existing, schools which teach more in one month than some other schools teach in a full term?

A four-year course, reduced to a three-year course! That is the accusation. The accusers talk glibly of "years," as though a college term covered a twelvemonth. The editor of the *Dental Cosmos,* in his August issue explains that under the so-called "four-year" course the full actual teaching time amounted to twenty-two months, while under the rule adopted at St. Louis, though only occupying "three years," the actual teaching time is twenty-one months. The loss of a month's teaching will seem of small consequence to the average student, in comparison with the year gained. It is probable that no dental graduate ever found himself really competent until he had had at least one full year of actual practice, on his own resources. Compare then the products of the two systems four years after matriculation. One student will have had twenty-two months of college training and lectures for his four years of time, while the other will have had twenty-one months of college training and lectures, plus a full twelve months of actual practice. The first man on commencement day will literally be at his commencement, while the other will already have the foundation of his practice established.

It is not here intended to argue for any lowering of standards, but rather to point out the fallacy of supposing that length of study is a measure of an education. True, four years of high school afford more education than three years of high school. But it is not necessarily true that a four year course in a dental college would produce a better dentist than a three year course, especially if there be but one month's difference in actual attendance.

Of course there must be a minimum time requisite for teaching dentistry, but it would seem that none but those actually engaged in the work of dental education are competent to determine what this minimum time should be. Certainly the average general practitioner is not able to fairly judge; nor is it any of his business.

The general practitioner, however, does have the right to require that those who enter the practice of dentistry, in association and in competition with himself, should at least have definite skill and attainments . In other words, while having no right to criticise the college methods, he does have the right to scrutinize the college product. Moreover, he has seen fit to safeguard his rights, by legislation establishing licensing boards. What then of the boards?

Examining Boards wereprimarily established for but a single purpose; to inquire into the qualifications of candidates for license to practice dentistry. In other words the definite duty of the examining board is to measure the product of the schools, and to license such only as measure up to the required standard. With the methods of the schools or the durations of their terms they have, or should have no concern.

Yet immediately after the announcement by the Faculties that they will graduate men after twenty-one months of actual teaching, the Examiners Association issues its pronunciamento that graduates must have had "twenty-eight calendar months of college attendance." This is one of those vague rules for which this Association is becoming famous. Does this mean twenty-eight months inclusive or exclusive of holidays and examinations? If the latter, then the Examiners require just seven months more than do the Faculties. The point at issue is that, as with the general practitioner, so with the examining boards. It is none of their business. They have a right to state how much, and not how long a college must teach a student, to render him elligible as an applicant for a license.—*Items of Interest.*

Dr. W. O. Talbot, formerly of Biloxi, Miss., has removed to New Orleans and will devote his time exclusively to Orthodontia in the future.

SHADOW VARIATION IN PORCELAIN INLAY.

By J. L. Newborn, D. D. S., Memphis, Tenn.

(Written for *The American Journal of Dental Science.*)

For fifty years the dental profession has labored and experimented with cements and enamels, stimulated by one great desire and belief that finally it would be rewarded by the production of a filling material that would perfectly replace lost portions of human teeth.

With all the artistic skill in blending the white, pearl, blue, gray and yellow shades of both chloride and oxide of zinc cements, and all methods of hardening those materials, the result was a keen disappointment, because it was, after all, a flat opaque patch which lasted only a few years.

As the process of discovery progressed in the direction of the aesthetic demands for a more perfect compliance with nature in these respects, evolution naturally led us to the conclusion that translucent lifelike expression could only be produced in fused porcelain. Hence the result—porcelain moulded to shape, shaded to match color and cemented in position to restore lost parts of a tooth. The delicate and dainty process of baking these little bits of porcelain could not have been done in the cumbersome old coke-heated furnaces of the past.

Now the simplicity and compactness of modern furnaces so cheapens and abbreviates the whole process of baking an inlay that labor seems turned into play, or at least, dignified by the appearance of elegant ease.

As simple as it may seem, few dentists become experts in this class of work. Possibly the majority may succeed fairly well in filling teeth with gold and amalgam, constructing a bridge or making a set of teeth. These operations are mainly mechanical, easy to master by anyone who is fairly endowed with a talent for mechanism, but it takes an artist to blend the colors in inlay so perfectly to match the shading of the natural tooth that the joint between them can scarcely be discovered and to bake it so as not to burn out these colors.

If you can paint a landscape true to perspective, harmonious in the blending of lights and shadows, or copy the blush and almost the fragrance of the rose, then you may hope to become eminently successful in inlay work. If not, don't bring the highest style of dental art into disrepute by making a botch of an operation which you have neither the talent nor skill to perform.

In the hands of the artistic, the gifted, the porcelain inlay will no longer be looked upon with suspicion as a fad, but that it is a realization of ideals and principles that are born to live. Even in the hands of these scientific, artistic, experts, these ideals and living principles are not always realized, but finished results in a great majority of cases are disappointing and unsatisfactory. This apparently insurmountable obstacle to perfect results is known as "Shadow Variation."

Dr. Head, than whom no greater authority has written on porcelain inlay, says "that Shadow Variation will be a problem to the end of time, because no matter how well the porcelain inlay is matched, the shadow that comes from cementing pieces of porcelain into approximal cavities will always produce changes that are difficult to foresee." * * * * "And I am free to say now," he continues, "that until we get an absolutely perfect cement that will have the same light refraction as the tooth structure, the shadow variation will always be an obstacle that will interfere with the artistic appearance of the inlay. For instance, if one sits under the electric light so that the light shines from above on a tooth tipped with porcelain, the light is shut off by the cement from the porcelain beneath, causing a decided line of shadow, in a similar manner if the light is thrown from below on the porcelain tip there will be the same shadow variation between the tooth and the inlay. But since ordinarily the line of cement is perpendicular and the light comes direct to the person, if the inlay is well matched there will be no shadow variation."

Dr. Head blames the *cement* for the whole trouble, and says that "it will exist to the end of time unless we can get an absolutely perfect cement with the same light refraction as the tooth," and yet admits that two equally well matched inlays cemented with the same cement in the labial and approximal surfaces of a central incisor—the approximal cavity viewed obliquely will always have the shadow variation, but the one in the labial surface viewed vertically will have none.

It is a fact that phosphate of zinc cement, no matter how thin the stratum, is opake and absorbs all the light rays and transmits none, therefore not translucent, if not translucent it has no power of refrangibility.

I have been experimenting for four or five years with the Acetone solution of celluloid. Recently I ordered from the celluloid factory in New York samples of transparent, white, pearl, gray, and pink celluloid. With a creamy solution of these samples, I cemented inlays in different positions in natural and artificial teeth and proved conclusively that the cement which was perfectly transparent, and the gray or white or pink which were semi-translucent, all had the same lack of light refraction as that which Dr. Head attributes to the phosphate of zinc cement. If, then, the opake cement, the transparent cement, and the semi-translucent cements are all equally ineffectual in our hands to modify or obviate shadow variations in our inlays, I would like to ask Dr. Head where he expects to find "an absolutely perfect cement that will have the same light refraction as the tooth structure."

We see objects by the light which is reflected from them to the eye. Webster says "Refraction is the change in the direction of a ray of light where it enters obliquely a medium of different density from that through which it has previously moved."

In studying a question like this we must remember and be governed by the following laws of physics:

"When a ray of light passes perpendicularly from one medium to another it is not refracted.

"When a ray of light passes obliquely

from a less refractive to a more refractive medium, it is refracted or bent toward the perpendicular.

"When a ray of light passes obliquely from a more refractive to a less refractive medium, it is refracted or bent from the perpendicular."

We must also remember that the crystalline structure of tooth enamel is a translucent and denser medium than the air through which rays of light pass to the eye, and that the vitrified structure of a fused porcelain inlay cemented in a cavity in a tooth is also a translucent and denser medium than the air through which rays of light pass to the eye.

If the inlay is cemented in the labial surface of a central incisor and viewed perpendicularly from the front, there would be no refraction, consequently no shadow variation—and it would be almost impossible to discover the inlay if it and the tooth were perfectly matched in color. But if the inlay is cemented in an approximal cavity or in any other position where it would be viewed obliquely, we *invariably* have that shadow which ruins the operation—no matter how perfectly the inlay and surrounding tooth were matched in color.

I do not believe that it is the refracted light from the inlay that produces the shadow, nor is it produced by the refracted light from the tooth enamel surrounding the inlay.

The vitrified structure of the inlay and the crystalline structure of the enamel around it are different in density, so that rays of light reflected obliquely through both of these different media, through the air as a common medium, are reflected unevenly, the vibrations of the light waves are crossed, the image blurred and the shadow is the result.

Now if I have made it plain to you that the cement has nothing to do with the shadow business, but that it is the difference in the refrangibility of the inlay and the tooth structure surrounding it, how can the trouble be overcome or obviated unless you can change the vitrified structure of tooth enamel which surrounds it?

You will agree with me that this cannot be done.

Then, in the last analysis of this perplexing question, it seems to me we have it simmered down to one last and only alternative, and that is—by the use of mineral paints, to shade the inlay so that after it is burned in it will perfectly match the tooth.

Then we will have an inlay whose light rays are reflected from its surface through one medium that cannot blur or shade the image thrown from the tooth whether they are viewed obliquely or vertically.

THE CHILD IN DENTISTRY.

By Bessie Burns Bennett, D. D. S.,
Baltimore, Md.

(Written for *The American Journal of Dental Science.*)

What is the relation of the child to the dental profession at large?

Similar to that of the acorn to the oak, or the tiny grains of wheat to the full field of golden splendor, for do not the children of today represent the men and women of coming years, the parents of a future generation; and upon the manner of their development does not the moral standing and the physical welfare of a coming race depend?

So, if the child of today be *well* trained in the value and care of the contents of its oral cavity, blessed is the dentist who may have the care of that child through its childhood and maturity; but if the child be badly trained, or not at all in these matters, woe to both patient and practitioner in the days to come.

A good motto for the dentist's sanctum is

"Honor and fame from no condition rise,
Act well *your* part, therein the honor lies."

"Act well your part." If every dentist were to carry this out in the spirit as well as the letter, instructing each patient who is a parent, pointing out what is best for themselves as also for the little beings entrusted to their love and care, emphasizing what might seem trivial matters—for too often the trivial matters form the key-

notes in the grand chorus of success; and Michael Angelo knew whereof he spoke when he said, "Perfection is made up of trifles and perfection is no trifle." If the parents *act well their part* toward the little ones, guiding the tiny hand till it becomes expert in the use of the tooth brush, carefully scanning the teeth for the slightest evidence of decay, zealously guarding the child from outrageous tales of ill-treatment and cause of fear at the hands of the dentist.

If the dentist himself act toward the child the part of a gentleman in the old English sense of the word, in all respects doing to the little one just as he would have done to himself under like circumstances, think you there would be septic mouths presented so often and a race seventy-five per cent of whom dread the dental chair to such a degree that the mere anticipation of dental operations causes suffering?

One little man under my care is a highly nervous, delicate little mortal, whose teeth show the ravages of continued ill-health and constant dosing, and above all things he hates the dentist's chair—or did when he came to me.

By judicious treatment in always doing just what I promise, by explaining why certain operations must necessarily be painful, by short sittings, and above all by keeping up a continued strain of conversation, spiced with funny stories or anecdotes, I have won over the little fellow so much from his antipathy, that although he is still at a far point from *loving* dental operations he comes to me without that dread which so racks little nervous systems, indeed sometimes adults suffer serious illness in the anticipation of the "torture-cabinet," as I heard one once term a dental office.

Another little patient is a tiny maid of five, whose first introduction to the dental chair was through me.

Now with children (and I know some of our older brethren will disapprove) I always begin right away with the engine, because if they see that mamma has it used on her teeth, and it is tabooed for them, their quick wits reason it to be something dreadful, so when it is *necessary* to use the engine there's trouble right there for both parties.

So as usual I made preparations for the engine, telling my small patient that if I hurt her she could raise her hand, and I would immediately stop.

The bur wa still about twelve inches distant from the youngster's mouth, but up went the arm full length, carrying out the maxim probably, "In time of peace prepare for war."

However in a few seconds I showed the little one that unless she jumped, "that thing," as she dubbed the bur, could only hurt in one place at a time, and that was all she had to think about as I had promised to stop if she said so.

The little lady saw the practicability of this reasoning, and although I knew some of the cavities were somewhat sensitive, she gave me no trouble whatever. In fact she is so pleased with her dentist that she has dropped all conventionality in addressing me and insists on coming with every member of the family who has an appointment. She recently asked her mother if she didn't think the baby (a little over two) had better be taken to me to have her teeth cleaned, as "they are looking dark."

Children are taught that it is the height of ill-breeding to be seen with soiled hands, faces, nails or unbrushed hair, yet many children can be found carrying in their mouths (through which all nutriment for the body must pass and become contaminated) enough dirt, and very dirty dirt, charged with pathogenic as well as harmless bacilli; enough dirt, I say, which if displayed on hands or faces would fill even the most careless parent with dismay.

And yet it is social law which demands clean faces and hands, so the children must needs adapt themselves to circumstances and appear clean, but it is *health* demands that the children's mouths be clean and yet—?

If the child be properly trained in the keeping of the oral cavity and its contents sweet and clean such habits will become second nature, and he will no more appear in public with ill-smelling breath and teeth covered with sordes than with his face decorated with a corresponding amount of virgin soil.

But as long as mothers neglect and dentists condone the fact that the little ones present themselves at intervals with accumulations of tartar and debris, just "slow up" and let the miscreants go on their happy way, instead of reading the law to them added to some salient facts which the small patients would do well to digest, or better still a sharp home thrust to the youngster's pride. So long as the dentist allows the misdemeanor of an unclean mouth to recur again and again, just so long will the child continue to become closer and closer involved in the toils of the bad habit, until when remonstrance *does* arrive it is almost in vain, and as long as this state of affairs continues, so likewise will the dental mechanism of the race continue to deteriorate, just as the magnificent dentures of the North American Indian have been influenced by contact with civilized customs.

Aside from the lowering of the moral standard, let us see what ill-effects an unclean mouth and carious teeth may produce.

To start with, caries alone causes endless pain in a child's mouth, the pulp being so large in proportion to the tooth: the beauty of the little face is marred by blackened, decayed stumps revealed by speech or laughter; the breath which should be sweet as the fragrant dews is charged with evil-smelling gases; the mechanism of the stomach is sadly overwrought by having to digest comparatively unmasticated food thrown into it because the child prefers to bolt its food rather than suffer pain in the process of mastication. In this way serious gastric or intestinal trouble may be brought about.

Then again, through the medium of such an admirable culture field as an unhygienic oral cavity, the child may be inoculated with diseases peculiar to childhood, which, under different circumstances, it might have escaped.

Then, too, the child not being trained properly in oral hygiene, will continue in its neglect until maturity is reached, when probably the penalty will be paid in some dread mental disorder, resulting from accumulations of tartar, lack of use and general sepsis, or at best the beautiful handiworks of Nature will be superseded by bridge work or "a plate."

A living illustration of this is now under my treatment, who says he has never cleaned his teeth more than ONCE A WEEK!!!

Hercules' task of cleaning the stables of Augeus could not have much surpassed the cleaning of that patient's teeth.

But, "Patience," it has been said, "is the strength cheerfully to wait and courageously to work regardless of delay and disappointments."

If this be the true definition, patience is the quality desired in this connection,—hand in hand, however, with her sturdier sister "Perseverance, — "that character which impels one steadfastly to pursue the object in view with an invincible determination to triumph over all opposition, "for with '*patience*' *alone* we might continue 'cheerfully' to wait and courageously to work," and the "patients" would triumph in all probability over us.

It is a small matter to wield the toothbrush three times a day; still less trouble to rinse the mouth thoroughly with some slightly stimulating wash. And how many times is one repaid by the sweet, clean feeling of mouth and teeth afterward!

If in all this controversy as to whether the three years' course is best for the student, or whether the four years' course is best,—or whether the National Association of Dental Faculties had the prerogative to make a change back to the three years without the years notice called for in its constitution, if in all this agitation, I say, there had been some provision made somewhere in the course, let it be then a four years, for none of the *practical* instruction for the student in the management of young patients, and the training of them in habits of oral hygiene, some good might have accrued, for as matters now stand, I am afraid very little PRACTICAL instruction is given on this vital point, and theory, when applied to practice, often acquires characteristics which are not bargained for.

And why shouldn't there be a *chair* in dental colleges on the treatment of children?

Dentistry has progressed too rapidly to

still hold that the methods applied to the adult are suitable for the child. But, as I have said before, all this can not be accomplished in a day, a week, or month, but Patience must sit enthroned for many moons before we or our successors can see the results of our efforts, and we must remember—

"The heights by great men reached and kept
Were not attained by sudden flight,
But they, while their companions slept,
Were toiling upward in the night."

It pleases me to note that our confréres in Sweden are toiling upward through the clouds which encompass this lack of hygiene, and they contemplate a popular distribution of some simple laws for the care and value of the teeth.

America is conceded to be the most progressive nation of the world. Why can't we, as dentists, fall in line with this movement and have formulated some simple rules for our clientele which the youngest patient could understand, telling of the inestimable value of the teeth, how and how often to clean them, how to watch the teeth so as to detect the first symptoms of decay, how to detect the deposition of tartar on buccal and lingual surfaces, how to use the floss or, if a toothpick *must* be used, how to prepare a *quill* one, explaining why *wood* or a *pin* should never be used? In short, embodying all the requirements for the perfect asepsis (as far as is possible) of the human mouth, couching them in simple yet forcible terms,—impressing upon the recipient that the rules are for *action*, not *contemplation*, a-la Kipling,—

Now these are the laws of the dentist,
And simple and few are they.
And the head of the law is the toothbrush,
And the strength of the law is "O-B-E-Y."

Tyree's Antiseptic Compound is a powder which combines strong antiseptic powers with an exceptionally agreeable odor.

It is used in the proportion of a large teaspoonful to a pint of water for cleansing discharging mucuous membranes and the dentist will find it a valuable help in cases of this class.

INCIDENTS OF PRACTICE.

By W. A. L. Knowles, M. D., D. D. S.,
San Francisco.

(Written for *The American Journal of Dental Science.*)

Patients are sometimes very positive in regard to certain operations having been performed in the past and though they are mistaken, as proven by books of record and charts, they are sometimes loath to admit their error.

A lady once called at my office, exhibiting a certain filled tooth which she declared had there been operated upon. An examination of the charts, carefully preserved, proved beyond question that the service had been rendered by some other person. The lady insisted that she was correct, that she perfectly remembered the circumstances and stated that she would pit her memory against the best set of books ever kept. The lady was informed that, as no record existed upon the books, if she was correct, she had never paid for the work and must therefore still owe for it. She became angered and left, but after an interval returned to apologize, having recalled the fact that the work in question had been done by another. Her apology was accepted, but future service respectfully declined.

I once had another peculiar experience. A dentist of my acquaintance once sent a lady patient to me to have some carious teeth attended to.

I performed this work and the lady, after getting from me an unfavorable opinion as to the advisability of attempting to save certain molars badly affected by pyorrhoea, returned to her former dentist and placed herself in his hands for treatment of this portion of her work.

This dentist treated these molars much more successfully than I could have done, and when she returned to me to exhibit them, I was more than pleased with the result.

Years of practice have subsequently taught me much in reference to the cure of such cases, an important adjunct to the successful treatment not having been made at all prominent. The lady said to me, "I think that the Doctor wants you to report on this case." I answered, saying that I would be most happy to do so.

The lady had paid a small portion of her bill and informed me that her husband would shortly pay the balance. Circumstances so shaped themselves that I did not have the opportunity to please the gentleman by a flattering report to the Dental Association upon his management of the case.

Some time having elapsed and not receiving payment of my bill, a statement of account was several times sent to the lady's husband and the account was finally placed in the hands of my attorney, who, not succeeding otherwise, was forced to threaten suit.

This threat brought the lady to time, and she called at my office, informing me that she had no intention of paying the balance of her bill as the fillings had all fallen out.

I asked the lady why she had not previously informed me of her dissatisfaction, and stated to her that while it was not unusual to have an occasional filling become dislodged, in my practice of many years I had never had the experience of being informed that all my work had fallen out and I asked the privilege of making an examination of her mouth.

I made an appointment with her, and, in the meantime consulted my books and charted the work which I had performed.

When her appointment hour arrived she seated herself in my chair, and I referred to my diagram and inspected the work as charted.

"Madam," said I, "here is the first and here the second," etc., until I had located all my fillings. They were intact and doing perfect service.

"Well," said she, "that is curious; but look at these open cavities. Where have those fillings gone?"

"Madam," said I, "I can not say. I do not know, because I did not fill them."

"You certainly did," she answered.

"Then you have never been charged for them," I replied, and I once more verified the fillings as charted and compared the charges entered with the items upon the bill, which completely proved my position.

"I beg your pardon," said she. "I do not see how I could have been so mistaken. Send your bill to my husband and he will settle it."

I again rendered the account and, after waiting in vain for several months, made peremptory demand upon the husband, and finally received payment.

Another experience which I had was rather unusual.

A lady, the wife of an army officer, brought to me her young son for examination and consultation.

An estimate was asked for, and the charges appearing satisfactory to her, the lady decided to proceed with the work and made a series of appointments.

The boy was rather delicate, or, at least, was so considered by the mother, he plainly being a "mother's boy," and the lady stipulated that the sittings should be made very short.

There were several unkept appointments, for, unless the sun was brilliantly shining, the lad was never allowed to go out for fear he would catch cold, or that some other dire disaster would befall him.

The work was at last accomplished and the lady directed me to render the account to her husband, saying, "My husband is a medical man and I suppose you will give him a discount."

I replied that it was my custom to extend to medical men a courtesy in the form of a one-third rebate.

I sent the bill to the hotel address given me and, hearing nothing from it, a couple of months later sent another. No response being elicited I sent a messenger to the army officer at his quarters.

Red tape made it extremely difficult to reach the gentleman, but it was at last accomplished. He looked over the bill and said, "Tell the Doctor his bill is too much and if he will cut it in half I will consider it."

When this message was repeated to me, I wrote the gentleman a courteous note, informing him of the contract made upon which I had subsequently made a one-third discount, and stated that the balance I expected to be paid.

His only answer to this was that he would pay half.

I immediately wrote him that unless my bill was paid within three days, I would commence suit. It was paid next morning.

On an occasion long ago, when the clock attachment for vulcanizing was new, I was called upon by the agent introducing it, who proceeded to explain the manner of operation of the mechanism.

He set the time for one minute, and then, in the course of conversation, directed my attention to some point which required that I should stoop and place my face very close to the clock.

Just as I came near it, the little metal claw was released, and flying back, gouged a small channel in the side of my nose. I assured the agent that his appliance had made quite an impression upon me, and it had.

I once read in a dental journal a description of a method for the removal of a gold crown in an expeditious manner. The process described was to bore a small hole in the top of the crown, insert an excavator, pry a little, and the crown would come off.

Not long afterward I had occasion to remove a gold crown. I bored the hole, inserted the excavator, pried, and the crown came off, but the tooth crown came off, too, inside of it. Perhaps the author of the process forgot to mention that part. I now use a pair of crown slitters and have no further similar experiences.

In regard to cleanliness, or rather uncleanliness of artificial dentures, we have all met with more or less unpleasant experiences.

I have seen instances in which the wings of the denture have been left too high; have first irritated the soft tissues and finally cut their way into them, leaving hanging flops of flesh.

Possibly this embedding of the wings had made the dentures more stable, but it had certainly inflicted much pain upon the wearers.

I have seen a denture in the mouth where the flesh had grown over portions of it, making it necessary to use lance and scissors before the denture could be removed.

We have all met with persons who do not remove the unclean mass of decomposing and fermenting food which clings to dentures.

One of the most peculiar of my experiences was in the mouth of a woman who came from a country town. She was wearing a partial denture of gold clasped to the natural teeth. A clasp on one side had become broken and she had come down to the city to have the plate repaired.

The plate was very foul, and when removed from the mouth was carried at arm's length and placed in a dish of sulphuric acid pickle for boiling. The plate was repaired by the addition of a new clasp and was inserted in the patient's mouth.

"You would better remove it and again place it in position," said I, "to see that it is all right and that you will be able to manage it by yourself, because you must take it out and clean it after each meal."

I used this method to instruct her as to proper cleanliness.

Her answer in her brogue was as follows:

"Shure, I'll not take it out at all. Whin I had the plate first made I wint up to me home in Calistogy and like a fool I tuk thim out and I couldn't put thim back agin, so I had to come clear down to the city agin to have the dintist put thim back. That was sivinteen years ago and I never had thim out of me mouth since."

METHOD OF MAKING CROWN FOR A DIFFICULT CASE.

By C. Frederick Rogers, D. D. S.,
Conneaut, Ohio.

(Written for *The American Journal of Dental Science.*)

We often are called upon to crown a tooth, especially cuspids, the roots of which are exposed, labially, the gum having receded probably from ⅛ to ¼ inch. A Richmond crown is not especially desirable, and any of the factory crowns are out of the question, for there would be more grinding to be done lingually than they would stand, even if one could be bought that would have sufficient length. The following method is especially adapted to these cases but can not be improved on for any case of crowning. After grinding the root well under the gum line, and selecting and grinding a bridge facing to accurately fit at the neck, cut a piece of 1-1000 platinum foil large enough to cover the end of the root, pressing the same well against the root with a cylinder of vulcanite rubber. This will not only give you an accurate impression of the root, but also the outline. Make a little cut with a sharp knife over the dowell hole in root, and lay aside. Fit a platinum pin loosely in root. Remove dowell from root and lightly press the pins in facing around dowell, just enough to hold them together. Place facing with dowell attached on root and after adjusting the facing in proper relation to root and while holding same in place, press the pins tightly against dowell with a pair of pliers, remove all together and set pin in a hole in fire clay furnace slab. Cut a very small wedge of pure gold, and wedge same in between dowell and pins next to the facing; place all in the furnace and solder. Bring heat quite high after gold flows to thoroughly incorporate gold in platinum. After cooling slowly, place disk of 1-1000 platinum, already prepared on end of root, melt quite a little ball of sticky wax on the facing and dowell, and force all against the platinum. Remove all together, chill wax, and press pin clear to the platinum in Mellot's Mouldine. Place in the furnace, and as the wax melts, wipe off with a piece of cotton, bring heat to a point where wax is entirely burned out. An investment other than Mouldine, would not be objectionable, if one wished, but after using plaster, Sump. asbestos, etc., I prefer Mouldine. After cooling, mix Brewster's foundation body quite thin and pack well between neck of facing and platinum, not building up too much for the first bake, or you will be cut off from the neck. After baking to biscuit, build well around the pin, giving contour required. Bake this time good and hard, as in this baking depends the strength of the crown. Be sure and bake thoroughly.

After again cooling, build on enamel body of proper color to the contour desired and bake to glaze. When cool, strip off the platinum foil, and you will have a tooth that is as perfect as human hands can make it, with as much or more strength than can be had in any crown.

About one and a half hours is required to properly prepare the root and bake the crown. Some may object to so long a time, but this crown has been such a satisfaction to me, and the fit at the neck so far away from any guess work that I have almost entirely discarded all other crowns. If one wishes, the patient can leave the chair while backing is baked, and most find this a very agreeable change.

THE INTERCHANGE OF STATE CERTIFICATES.

By Dr. H. G. Patterson, Boise, Idaho, President of the State Board of Dental Examiners.

(Written for *The American Journal of Dental Science.*)

One of the most important questions confronting the dental profession today, is the interchanging of State certificates.

Our State Dental Society took a step in that direction at its last June meeting by passing resolutions and appointing a committee on legislation.

The committee on legislation will endeavor to amend our laws so that we will be able to interchange certificates with other states having the right to interchange by law. This could be accomplished in every state in the United States if the State Boards of Examiners and Dental Societies would only take the matter in hand. I have talked and written to a great many on this subject, and I find none that object, but that all are heartily in favor of a law that will allow the interchanging of dental certificates. It seems to me that there should be one National Board of Dental Examiners, and this board to consist of one member from each state, and said board to meet once in each year, and at such place as the board may deem proper.

The fee for an examination could be placed at about fifty dollars ($50.00), more or less. We have thousands of licensed practitioners in the United States, and let any one of these licensed dentists, from poor health or any cause, wish to change his location. The first thing that he must do is to come up before a board of examiners, (to see if he is competent to practice dentistry) which in my mind is a great injustice to the applicant for he has a license to practice in one state and is, no doubt, a competent practitioner. My claim is that if a man is competent to practice in any one state in the union, he is competent to practice in any and all of the states.

And I can as President of the State Board of Dental Examiners of Idaho see more and more the need of such a law. There are so many state boards that are unjust in their examinations. For instance, I have in mind one case where there were twenty-one applicants and I believe they were all graduates, came up before this board for an examination, and only one passed the board. Now if we had but one national board to do all of the examining then this state of affairs would not exist. There would be no excuse for it.

We have attained a high standard in our profession, and this standard can be maintained by our colleges, the National Board of Examiners and our state societies. I believe that our profession is ready for such a change, and I believe that in the next two or three years it will come. I hope that all of the societies and examining boards of each state will earnestly consider this great question of interchanging certificates. I believe that we all want it, and all we want is to go to work and we will soon see what a good result will come from it.

I was talking with one of our profession a number of years ago on this same subject, and he thought that it would not do to issue a certificate to a man that would permit him to practice any where in the United States. He argued that then there would be no cause for a man to study. I tell you this could never be, for a man cannot practice and be an up-to-date dentist and not study; he would soon be counted as a back number and be laid on the shelf. A man must study if he never expected to practice outside of his own state. For dentistry is progressing with great bounds and one must keep pace with the times, and in order to do this he must study hard. Those who have been practicing long enough can look back ten, fifteen or twenty years and see what a great change has taken place. Now suppose that A commenced to practice fifteen or twenty years ago, and has left off his study, do you think that he could have any show alongside of one who has kept up his study and progressed with the times? No indeed a man must be progressive, and wide awake if he wishes to succeed, whether we can interchange certificates or not. But I believe that to change our laws so that we can interchange certificates would be just and right to all.

TIME AND ITS VALUE IN THE PRACTICE OF DENTISTRY.*

By W. H. Scholl, D. D. S., Reading, Pa.

When man is ushered into this world there is no guarantee issued at his birth as to how long he is to live here. If he had a knowledge of the hours, days, or years he is destined to remain upon earth, man's time could be divided and subdivided so that he could spend so many years in educating himself for his life-work in whatever field the trend of his ambition led him, and also set apart the number of years for the gratification of all his longings. But as there is no certainty of his stay here, man should remember Seneca's admonition, "Live as if every moment were to be thy last." If endowed with healthy organs, supplied with proper nutriment and the needed sunshine and exercise, there is no reason, barring accidents, why man should not live the allotted span of life, with confidence expect to reach a ripe old age, and divide his time accordingly.

Time is defined as being "the measure of the duration, whose parts are marked by the motions of the heavenly bodies, as a year, a month, a day, and by the artificial divisions or aggregates of these."

---

*Read before the Lebanon Dental Association, at Harrisburg, Pa., Fuller says, "Make use of time, as thou valuest eternity," and Franklin remarks, "Dost thou love life? Then waste not time, for time is the stuff that life is made of." To Thomas Jefferson is ascribed the wise utterance that "No person will have occasion to complain of the want of time who never loses any," and Mason says, "As every thread of gold is valuable, so is every minute of time." Fénelon remarks that "Time is given us that we may take care of eternity; and eternity will not be too long to regret the loss of our time if we misspend it." "Time, the cradle of hope, but the grave of ambition, is the stern corrector of fools, but the salutary counselor of the wise, bringing all they dread to the one and desert to the other." Such is the beautiful definition of time by Cotton.

Horace Mann seeks to impress the worth of time thus: "Lost yesterday, somewhere between sunrise and sunset, two golden hours, each set with sixty diamond minutes. No reward is offered for they are gone forever!" Undoubtedly, the versatile and immortal Franklin presents the value of time in its most impressive form when he claims it as his "silent partner." Listen again to this acute and ingenious author: "If time be of all things the most precious, wasting time must be the greatest prodigality, since lost time is never found again; and what we call time enough always proves little enough. Let us then be up and be doing, and doing to the purpose; so by diligence shall we do more with less perplexity."

But what I wish to emphasize on this occasion is the value of time as we measure it by appointments with our patrons. It has been said that time is the only capital possessed by the dentist. If this is true, we can readily understand its importance, for it is the use we make of time which establishes its worth. It is our bread-producing capital, and the seconds, minutes, and hours lost are past redemption. So, if it is not our entire capital, it is, certainly, the most vital part thereof, because of its ever-fleeting nature, for a moment lost is gone forever. Its significance is measured by its transitory character.

If time is the capital of the dentist, it is also the capital of the great majority of mankind, and even of those of ample means, for it is not the nature of man to live on what he has, nor is it recognized as a quality of good citizenship not to be a producer of some kind, nor should the world expect to realize something for nothing. The physician's time may be of more value when he is called in a case where the issue is one of life and death than is the dentist's; but in the majority of cases the physician, if need be, can shorten his calls, while usually the dentist cannot without sacrificing his efficiency or slighting his work.

In serious illness medical aid is summoned with all speed, and the physician calls daily as long as his services are needed—sometimes a little longer,—depending often on the length of the patient's purse. The credulity of man, it is said, is great, and if a physician has the persuasive faculty well developed and is unscrupulous, he can inoculate a susceptible mind with the fear of the most dire consequences if his services are not continued and his advice not heeded.

While death is not often threatened by a disturbance in the dental organs, nevertheless the sufferer rushes to the dentist, gets relief, swears that henceforth he will have his teeth attended to, engages time, returns home with the pain gone, and becomes oblivious to the engagement. The dentist waits patiently; the hour passes, but the sufferer has been so well cured that he has forgotten his appointment. If reminded of the fact by a gentle request in the form of a bill for services rendered, he waxes wroth, and threatens with dire vengeance the alleviator of his suffering. If I could collect the sums due me for time lost by unkept engagements in my forty years' practice, I might occasionally be able to play golf or go fishing.

The liability of patients to pay for time engaged but not used is beyond dispute, for the courts have so decided in many instances; but as the dentist is dependent on the good will of his patrons, it is seldom wise to go to law in order to recover.

Every patient should be given an engagement card with the date punched or marked and the penalty stated if the appointment is not kept. The question of fees has never been a subject of discussion in any one of the three dental societies to which I belong. It is questionable if any equitable schedule of fees could be formulated that every one, even in the same community, could adhere to, unless a sliding-scale were attached allowing much discretion on the part of the operator to accommodate his charges to the varying circumstances of his patients. It is greatly to the honor of these bodies that they have never argued this question, as it might be held to justify the community in the opinion that our organizations are on the same footing as societies whose chief concern is that of wages. I certainly do not desire to start a discussion on the subject today, but at the same time I see no reason why a local body could not have some understanding of what is a fair remuneration for our work. The tedious, nerve-exhausing labor a dentist is called upon to do, together with the expensive material, tools, and machinery he has to employ, including the comfortable rooms he has to maintain, should bring a fair return.

Dr. W. H. Atkinson said, "All difficult labor is necessarily capable of commanding higher compensation for the time spent." Some dentists cater for a rich patronage and can command higher fees. Then again some people measure the qualifications of a dentist by the style he lives in and the amount of his charges,—the higher the better. I have heard some dentists speak very contemptuously of others on account of the small fees they received. But big fees are not always a criterion as to qualification, for the worst quacks very often make the most money.

I acknowledge that I am unable to quote you a scheduled table of fees to go by. I could never encourage nor find any comfort in the method of getting all you can out of a patient on the "squeeze him for all he is worth" principle. Such conduct in a dentist is unprofessional and worthy only of swindlers and highwaymen.

That the expert and proficient dentist is able to command higher fees should be no cause for jealousy among the less expert. Rather it should be an incentive to gain the same ability. As a dentist is a human machine, subject to wear and tear, and can no more endure continuous work than his fellow-beings, even if he overtops them intellectually,—he must abide by the wise injunction to "rest from labor" at due intervals.

Some of us may think that the fees received here are entirely too low. This question was discussed by prominent dentists in New York City in 1863. Dr. J. S. Latimer (who, by the way, was the first man that produced a first-class barbed dental nerve-broach) stated that his charges were three dollars per hour and one dollar an hour for lost time. The fees in Philadelphia vary from three dollars to eighteen dollars per hour. The late I. H. McKellops, of St. Louis, is reported to have received fifty dollars per hour. Of the lamented William K. Atkinson—one of the best gold operators that ever filled a tooth—it was said that he died poor because he sought to establish a twenty-five-dollar-per-hour fee. This story is, however, emphatically denied by Dr. Mills.

To a sensitive man there is an unpleasant and sometimes a mortifying feature about asking high or exorbitant fees, as the following stories of a New York dentist will show:

A lieutenant of the navy was asked one hundred dollars for filling a tooth; the officer offered, in addition, his gold watch and chain, saying, "If you want to rob me take these also." In another instance, after putting the mouth of a Quaker in good condition, he requested $2,700 for it. The Quaker demurred very strenuously. The doctor said: "I have taken thee to my bosom and have befriended thee. I have put thy mouth into a healthy condition, so that thee can masticate and insalivate thy food, relieving thy stomach from overwork, thereby keeping it healthy, so that its function can be properly performed. I have befriended thee as a brother, and thee should not hesitate to pay the paltry sum I am asking thee." I do not begrudge them the fees who can command a rich clientele. Let them have all the honor that is due them. But the great majority of just as good and competent operators who are willing to serve the people at a rate corresponding with the means of their patrons are possibly deserving of as much praise and as high a rank—if not higher—than those catering only to the rich. The parted lips of the hundreds you meet everywhere display sufficient imperfections in their teeth for hundreds of additional dental co-laborers. There is room at the top for all who are willing to work up from the lowest round.

The young man who learns a trade receives a certain amount of pay and an increase every six months or year until he has served his apprenticeship, when he at once gets the ruling wages prevailing at that place. The student in dentistry must be eighteen years of age, twelve of which are necessary for the preliminary educational training required to make him an intelligent dental student, able to grasp the subjects daily presented for his study. Instead of earning money, as is the mechanic, he is spending it. While the mechanical apprentice is earning one thousand dollars, the dental student is spending at least two thousand dollars. This added to the one thousand dollars the mechanic is earning, equals three thousand dollars. Add to this sum the cost of instruments, etc., which at the lowest is five hundred dollars, and this will hardly include office furniture. So in the very start the new dentist has a debt of three thousand five hundred dollars to four thousand dollars. It is immaterial where the money came from,—it's the financial capital that the dentist must calculate on, while out of time, his "silent partner," the interest and his living expenses, etc., must be earned. It is poor policy to start with inferior tools and appliances, because time is the most expensive commodity around the dentist's office: therefore, any device, preparation, or tool that saves time saves money.

It is not the province of this paper to specify what fees a dentist should receive for his time and materials; undoubtedly he has to be satisfied with what his skill can command; but a good rule to go by is to increase your fees as the demand for your services increases.

Time has wrought wonders in the improvement of dentistry since my entrance into the profession. In those days a paying reputation was only gained by years of practice, and the most convincing arguments were good and lasting fillings or dentures. But in order to demonstrate the virtue of operative dentistry a good deal of work had to be done at a mere pittance. Thanks to progress, mistrust and superstition have given way to reason and common sense. Even the most illiterate recognize that no one is ugly who displays a fine, clean set of natural teeth however irregular. As the late Professor George T. Barker remarked in his strenuous style, "there never has been, nor can be made an artificial substitute—however excellent—that can equal a moderately sound natural set."

On the importance of time I have quoted the thoughts of men in many vocations of life and have endeavored to impress you with its value in relation to our daily routine of work. As most people have to sacrifice time in order to avail themselves of the services of the dentist, he should be promptly on hand when an engagement is due, for he cannot expect punctuality in others if himself unpunctual.

In reading this paper I have not been sparing of your time, and for your forbearance with that trespass extend my hearty thanks.

BOOK REVIEWS.

Bravest of the Brave—Captain Charles De Langlade, by Publius P V. Lawson, published by Log Cabin Inn, Menasha, Wis.; two hundred and ninety-eight pages, seventeen full page colored illustrations, cloth $1.50, morocco $3.00.

This is not fiction but history lived in the great lake region that reads like romance. Its scenes are laid in the stirring days of the habitant and trader; the long war for the conquest of Canada; thrilling days in the contest for the fur trade; where the bushranger, the savage, and war, massacre, and the beaver formed the current topic of interest; and Pontiac with firebrands and tomahawk swept the frontier; then the echoes of the Revolution stir the west, and the savage, who hovers over all Colonial history, hurries to the massacre of St. Louis. The scenes shift over Canada, the great lakes, the Ohio and Mississippi Valley, now Wisconsin, Michigan, Illinois, Missouri, etc. A remarkably interesting and instructive story, well told.

Food in Health and Disease.

by I. Burney Yeo, M. D., F. R. C. P.

> Emeritus Professor of Medicine in King's College, London, and Consulting Physician to King's College Hospital, Etc., Etc. Ninth Edition, with Illustrations. Chicago, W. T. Keener & Co. $2.50 net.

The book is divided into two parts, the first devoted to Food in Health, the second to Food in Disease. In the first part are included the important subjects of Army and Prison Dietaries, School Dietaries and Feeding during the critical period of Infancy and Childhood. In the second part are included Feeding in Acute Disease and Convalescence, Dietetic Treatment of Obesity, Anaemia, Neurasthenia, Hospital Dietaries, etc. It is a good book, worthy of careful study.

NOTES.

It is composed of borate of sodium, albumen, carbolic acid, and glycerine, together with the crystallized principles of thyme, eucalyptus, gualtheria and mentha.

Samples can be secured by addressing J. S. Tyree, Washington, D. C.

Fearless and Independent.

The Chicago Record–Herald is a conspicuous example of the success with which the public rewards fearless non-partisanship in the columns of a great metropolitan daily paper. It is an independent newspaper, in which men and measures are invariably viewed wholly from the standpoint of the public good and not from that of the interests of any particular political party. It is the very reverse of neutral—fearless and outspoken on all the great questions of the day, but presenting its editorial opinion upon independent judgment and entirely regardless of political affiliations. Partisanship is barred as strictly from the news columns as from the editorial page. All political news is given without partisan coloring, thus enabling the reader to form correct conclusions for himself. In the ordinary partisan newspaper political news is usually colored to such an extent as to make it difficult if not impossible for the reader to secure a sound basis for intelligent judgment.

DENTAL HINTS.

Oxyphosphate Fillings in the Anterior Teeth of Children.—Dr. Ottolengui considers the practice of placing gutta-percha or oxyphosphate in proximal cavities in the anterior teeth of children reprehensible in ninety per cent. of all cases, as the final filling of gold will be larger than if inserted at the first treatment of the cavity.—*H. E. Eaton, Dominion Dental Journal.*

Plaster Impressions.—When a plaster impression is to be taken of a mouth, especially when some teeth remain in it, and it is free from thick saliva, it should be rinsed with a saponaceous wash to prevent parts of the impression material breaking away and sticking to the dry mucous membrane.

Partial Plate.—In making a partial rubber plate, when the bite is close, solder a flange of platinoid under the heads of the platinum pins, perforate it with holes and let it extend in the body of the plate. If carefully heated "rubber teeth" will not crack when soldered with fine gold solder and the platinoid will not melt under 20 carat fine solder.

Bands in Regulating.—A nickel rolled out to the proper thickness serves the purpose far better than German silver. It is better in color, and remains so; is somewhat stronger, and can be soldered with the greatest ease.—*Brief.*

Concerning Arkansas Stones.—Wash your Arkansas stone with soap and water and never again use oil upon it. While operating keep it on the bracket table and sharpen all cutting instruments, with water only, before using. Water is more cleanly, efficient and presentable than oil. It oxidizes the particles of iron and the oxide aids in producing a keen edge.—*Dr. W. C. Gowan, Review.*

Moistening Root Canals Before Filling.—Tyndale's pure oil of eucalyptus is an excellent dressing with which to moisten root canals prior to introducing gutta-percha cones. If also applied after the cone has been placed in the canal, and by employing a blast of warm air the gutta-percha will be easily packed into the canal. Just enough of the oil to moisten the canal is all that is necessary.—*C. R. Taylor, Review.*

To Make a Finger-Hold for Broaches.—Ordinary Donaldson broaches may be changed to handy broaches for molars by cutting off half the stem or handle and dropping two or three drops of ordinary sticky wax on the end to form a globule or finger-hold.—*J. C. Montgomery.*

Deciduous Teeth with Putrescent Pulps.—Remove all debris as far as possible and insert a small pledget of cotton saturated with Dr. Black's 1, 2, 3; fill cavity with oxyphosphate or with gutta-percha; if with the latter, add to it as it wears down. This will insure the comfort of the little patient and assure mastication.—*Dr. G. E. Adams, International Dental Journal.*

Erosion.—In cases of erosion make the fillings concave on the surface to protect margins from acid secretions, which will then accumulate in the saucer-like depression and expend their effect on the filling material.—*Dr. F. W. Stephen, Review.*

In approximal cavities of molars and bicuspids there should be a step cut in the occlusal surface and this should be but slightly dovetailed or grooved, as deep undercuts have a tendency to weaken the tooth, and are not necessary for anchorage.—*Dr. H. P. Martin, Register.*

To Apply Rubber Dam to Lower Incisor Teeth.—First tie a ligature around the teeth on which you desire to put the dam; then apply the dam and ligate in the usual way. This prevents the stretching of the dam over the ligature from pressure of the lower lip as the dam is held firmly between the two ligatures.—*J. C. Montgomery.*

Amalgam Fillings in the Deciduous Molars.—In compound cavities, in cases of near proximity to the pulp, or in extra resistive dentin, carbonize the cavity, varnish, fill half full with cement, and follow with amalgam, pressing firmly to displace the cement, except a mere lining.—*Garrett Newkirk, Dental Review.*

Quack Dentists.—It is true beyond question that hundreds of people will and do employ quack dentists who would not think of employing a quack physician. This is true because we have made the purely mechanical side of our work the basis for charge and have given the scientific and professional part free.—*Dr. S. H. Voyless, Era.*

Overcome Gagging. — Dipping the plate into strong vinegar before inserting it in the patient's mouth will prevent any ordinary case of gagging. In extreme cases, bathe the roof of the mouth with a menthol solution applied on a pledget of cotton.—*Dr. C. L. Davis, Summary.*

Polish for Aluminum. — Procure from a hardware dealer a supply of universal metal polish (Putz Pomade) and apply the smallest amount possible to a thin cotton wheel by means of a piece of wood, upon which a small amount of polish has been placed, and held against the wheel while running the lathe. The polish should be used without water.—*Dr. J. Mills, Review.*

Root-Filling Material.—Gutta-percha base-plate, by weight, one-half ounce; saturate solution of thymol in eucalyptus, by measure. Dissolve the gutta-percha (one-half ounce) in chloroform, add the thymol and eucalyptus and mix thoroughly; then allow the choloroform to evaporate. Work into the canal with broach and force to apex with soft rubber and gutta-percha cone. After five years have found distinct odor of thymol and eucalyptus.—*B. L. Cochran, Dental Review.*

Power to Work an Atomizer.—The ordinary rubber bulb sold with atomizers is of very little use, as sufficient pressure cannot be obtained to produce the required spray. I use a bicycle foot pump attached to the atomizer with a piece of rubber tubing. This will be found convenient to anyone who has occasion to use an atomizer.—*Dr. Oliver Martin, Review.*

Method of Making Surface of Wax Smooth.—A smooth surface on a "waxed up case" can be obtained without spoiling festoons or gum carvings by adopting the following method: Smear the surface of the wax with a pellet of cotton saturated in chloroform. Burn off the chloroform with an alcohol lamp or a small bunsen flame. This will leave a smooth, glossy surface on the wax and will not destroy previously carved gums.—*Dr. H. H. Hancock, Review.*

When gold is used for banding a tooth in which there is an amalgam filling, the gold may become permeated with mercury and so weakened that eventually it may break up. A piece of platinum foil may be burnished over that part of the band which requires guarding, and soldered to it before it is bent, and thus obviate the danger.—*A. Drake, in Dental Record.*

A Little Point to Remember When Inserting a Mechanical Separator.—Whenever the separating points go higher than they should, crowding uncomfortably on the soft tissues, the screws should be relaxed, the points held in the right position while pieces of gutta-percha are warmed, and crowded under the bows. When these are hard (and the hardening may be hastened with the chip-blower) the upward movement of the points is prevented, and separation is proceeded with as usual.—*Dr. Garrett Newkirk, Dominion Dental Journal.*

Reciprocity.—If one may judge from the expressions of opinion recorded in our literature there is an increasing sentiment in favor of the right to practice dentistry anywhere in the Union by those who have once qualified under a proper state law. It is clear that the vital obstacle to be overcome is the lack of uniformity in state dental legislation; states having a high standard refuse to accept the licenses of states having a lower standard, and low standard states decline to accept the licenses of high standard states unless the recognition be reciprocal.—*Dr. E. C. Kirk, Items.*

THE DENTAL SUCTION CO.

LOUDONVILLE, OHIO

Manufacture and sell the only absolutely sure and guaranteed suction worth using. Order a box today. Price $1.00 for six and save profanity.

Dental-Suction Co., Loudonville, O. Oneida, N. Y., December 21, 1903.
Enclosed find check for $2.00 for which send me two boxes Suction chambers. They are working fine. Well pleased. Yours, Dr. Carlton Alvin Smith.

Port Deposit, Maryland, December 24, 1903.
Dental-Suction Co., Loudonville, O.
Gentlemen:—Please send me two boxes of the Perfection Flexible Suctions. I have used them and find they are the best I have used for the purpose. I used them on a plate that nothing else would have retained the plate in place. Enclosed find $2.00. Address, Dr. H. W. Hoopes.

Dental-Suction Co., Loudonville, O. Mt. Vernon, N. Y., March 7, 1904.
Gentlemen:—Received the Suctions; the same was used for a patient that has had six sets made in different places. Came discouraged to me, tried one of your Suctions left the office, telephoned to me after two days, "Delighted!" Yours truly, Dr. E. D. Costales.

All First Class Dealers Recommend These Specialties

Anti Glaze Strips (*reduced in price*) **30c per box—$3 50 per dozen.**

Disks in boxes of 100, 600 or 1500, asst., 10c, 50c and $1.25 per box.
Manufactured by the Wilson process, the latest
and most improved process known.

Paragon New Departure Cement, per package of two colors, $1.50
An excellent fine ground cement that gives excellent results
in crown and bridge work.

Paragon Re-enforced Chamois Disks—*are made heavier around the mandrel head and are less apt to break*—**per card of one dozen $1.00**

Do you have trouble with your crowns and bridges turning brassy when cooled in water? Try our ***ARDENTINE*** for cooling them it will put a beautiful lustre on your work— in neat two ounce package ***$1.00.***

If your dealer does not have these goods in stock order direct.

PARAGON DENTAL MFG. CO.,
RACINE, WIS.

"It didn't hurt a bit!"

WHY?
His Dentist gave him
"Antikamnia & Codeine Tablets"

When to Use Them

FIRST
To ease the nagging and shooting pains while operating; to quiet the nerves, and prevent the headaches and nausea which frequently follow operations, administer one Antikamnia & Codeine Tablet every hour. Give one before beginning operation

SECOND
One Antikamnia & Codeine Tablet given before and another one after extracting a tooth, will stop pain and allay irritability

THIRD
When a painful cavity exists, or a nerve or root is exposed, administer internally one or two Antikamnia & Codeine Tablets and fill the cavity with the powdered tablet, or apply it freely about the gums

FOURTH
For toothache, earache and facial neuralgia, administer one Antikamnia & Codeine Tablet every two hours until relieved
FOR SAMPLES AND LITERATURE, ADDRESS

The Antikamnia Chemical Company St. Louis, Mo., U. S. A.

DR. WILSON'S

Guard and Sponge Holder

A common sense device for use in grinding teeth. It is not only a disc shield but a moistener as well, using cotton roll, spunk or sponge. It will fit any handpiece and is not in the way of the fingers. Is very easily adjusted for large or small grindstones, also long or short mandrels and locks without set screws.

Price only 50 cents.

FOR SALE BY ALL DEALERS OR

DR. J. D. WILSON

DANVILLE - - ILLINOIS

Kester's Alloy is the result of twenty years' experimenting by Dr. P. J. Kester of Chicago. It has been used by prominent dentists for a number of years with so uniformly satisfactory results that it has now been placed on the general market.

It is the only alloy that is tempered and tested to zero. **It neither shrinks or expands.**

Perfect color — great strength — minimum amount of flow under stress — THE MOST PERFECT AMALGAM MADE.

Price: $2.00 per oz. -- 3 ozs. $5.00

For sale by dealers or

DR. P. J. KESTER,

A generous sample will be sent on request. **Masonic Temple, CHICAGO**

PUSTOLENE cures abscessed teeth at one sitting.

"Trade Mark Registered"

We guarantee Pustolene, if properly used, to cure an abscess or putrescent pulp at one sitting.

Pustolene has been thoroughly tested and is now used by more than 10,000 Dentists throughout the United States and Canada.

Pustolene is in paste form, always ready to use, and is composed of the most powerful germicides known; will not discolor the teeth and has a very pleasant odor.

Pustolene will, "if used as a pulp capper," relieve an aching pulp in a very few minutes and will return the pulp to its normal condition, there to remain permanently.

Pustolene has gained its reputation solely on its merits and has found its way to all parts of the Globe.

FREE—Upon request we will send free one sample and testimonials of Pustolene to any Dentist who has not had the pleasure of trying it.

For sale at all Dental Depots. Price $1.00—$1.25 in Canada and Foreign Countries.

If your dealer does not have it, order direct and send us his name.

PREPARED ONLY BY

J. A. SPRAGUE & CO., Columbus, Ohio.

THE

Webster Fountain Spittoon

PRICES

Complete, for Wall Bracket, or any Chair, excepting High Low Gould and Crown,

$40.00

When Stand, High Low Gould, or Crown Chair Arm is wanted, extra,

$5.00

The above cut does not do full justice to our new Fountain Spittoon.

We have in the manufacture of this Spittoon embodied some new and valuable features, notably among them, the automatic **valves**, which are so constructed as to work **positive** every time, cannot get out of order and do not have to be **repacked.** No **depression** in bottom of bowl for **dirt** to settle in. No **holes** in bottom to **leak** or **weaken** the bowl. Bowl can be taken out, if desired, in **one minute**, by simply loosening one screw. And lastly, the simple and **perfect** way it is constructed.

It is manufactured in our **own factory**, under our personal supervision, by the most **competent** workmen that can be had.

It is made in the best **lead** metal glass, in beautiful Dark, Green, Ruby Red, or Clear Glass, and it is guaranteed for one year.

Send for Descriptive Catalogue.

Manufactured by

THE WEBSTER DENTAL CO.

566 MAIN ST., - BUFFALO, NEW YORK.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA. Dr. A. L. TRADE MARK. **AMALGAM.**

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,—2 oz. $5.50,—4 oz. $10,—10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by

AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.

FOR SALE AT THE DENTAL DEPOTS.

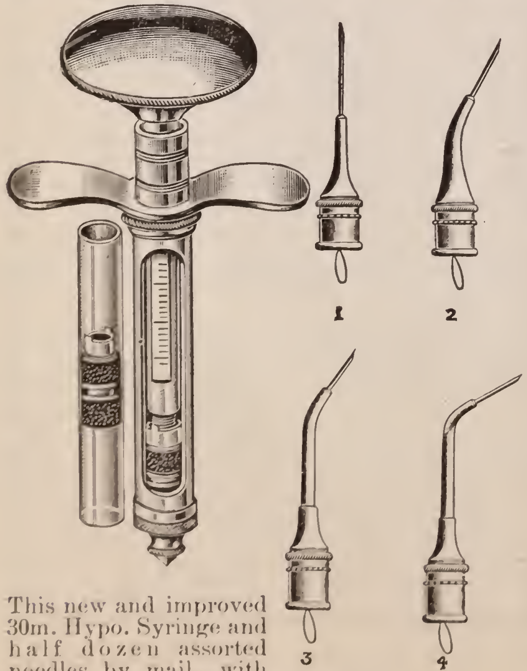
BURS : BURS : BURS : BURS

Sample order of two dozen for **$1.25.** First-class Burs—Stubs Steel, Machine Cut, Perfect Temper. Will give rates by gross or half gross with two-dozen order. Sample on request. Order to-day.

J. J. REED, Beloit, Wis.

BURS - BURS - BURS - BURS

NEW



This new and improved 30m. Hypo. Syringe and half dozen assorted needles by mail, with our complete catalogue for $1.00.

Physicians Supply Co.

Dept. A. Passaic, N. J.

The only Guaranteed non-breakable broach now used by the profession.

THE ACME

Our claim that the Acme is the finest and toughest nerve extractor has not yet been disputed. Remember it is not a reamer, but does the work where the ordinary broach does not reach, viz., in a small or tortuous canal clinging to the side of the walls, and extracting the nerve without any danger of breaking the broach. We are so convinced that they will prove satisfactory that you can return them and have your money refunded. **GET THE ACME.** Price $1.00 per dozen or $9.00 per gross. For sale by all dental depots or the sole manufacturers.

We also manufacture the Rex—a broach similar to the one they charge $2.50 per doz. We will also guarantee this to be equal to it at $1.50. Simply give us a chance to show you on two kinds of nerve extractors—The Acme and Rex—and we are certain to have you for our regular customer.

We take Scrap Gold and Filings in exchange allowing highest market prices.

St Louis Refining Co.

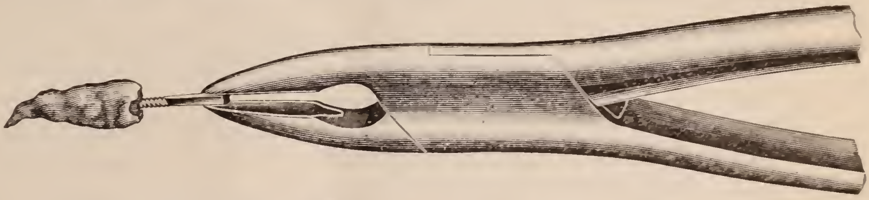
118 East 116 Street, New York

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary.*

Platinoid Crown Pins



Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

Is Your Plate Work

A BURDEN TO YOU?

IF SO——————

Mail us your impressions and wax bites, for we have achieved remarkable results in constructing mechanical work correctly. Doctor and you may as well derive the benefit of our experience. If you have ever hesitated to send out your laboratory work you need not in the future have any doubts as to its safety, for your work would receive the same amount of care and attention as it would if you had it in your own Laboratory. Try us and be convinced of our ability to do work as it ought to be done. Is your business a little dull? Let us boom it for you. Remember, that your prosthetic work is your representative, and talks to the people. Is it not satisfaction to see perfect results, and why, because we take pride in each and every case produced.

HERE ARE SOME OF OUR PRICES

all material furnished

GOLD CROWNS		***BRIDGE TEETH***	
Incisors	$1.50	Incisors	$1.25
Bicuspids	$1.75	Biscuspids	$2.00
Molars	$2.00	Molars	$2.25

RUBBER PLATES

S. S. W. & Justii	$3.00
Consolidate Sibleys	$2.75
Frink & Young	$2.50
Pinless	$2.00

We return completed work the same day we receive it.

We furnish upon application strong mailing boxes in which your work can be shipped back and forth with all safety.

Write for our new wooden Mailing Boxes, 2 sizes, large enough to hold impression cup and bite for plate work and a smaller size for crown and bridge work.

DRS. CHRISTOPHER & GOLBECK

39 STATE STREET, CHICAGO

You Want the Best

Dr. Gilmore's
EXCEL LOCAL ANAESTHETIC

For absolute painless extraction. Safest and best. Thoroughly Antiseptic.

Price 2 oz. $1.50, 6 oz. $3.60, 10 oz $5.00

This Anaesthetic is acknowledged by every Dentist who has tried it to be superior to all others on the market.

ABCESQUE

A positive and permanent cure for all abscesses and a fine root canal filler

In $1.00 and $2.00 packages.

EXCEL GOLD STARTER

For starting gold fillings. Saves time, pain and strain on the eyes.

In $1.00 and $2.00 packages.

EXCEL DEVITALIZING PASTE

For painless devitalizing of nerves. It is painless.

Price $1.00

ANTI-STRANGLE

To prevent strangling when taking impressions. Insures a perfect impression and comfort.

Price $1.00

LOCALINE

Is a strictly local anaesthetic and applied to the gums on cotton.

Price 1 oz. $1.00, 4 bottles $3.00, 8 bottles $5.00

PULPINE

Successfully saves inflamed and aching pulps, stops hemorrhages and after pains like magic.

Price $1.00; Powder or Liquid, 50c each

OBTUNDINE

Successfully obtunds sensitive dentine at once.

Price $1.00

The greatest advertisement a dentist can have is to assure his patients ease and comfort in the dental chair; price is no object and they will go hundreds of miles to have them do their work.

The experience of thousands of dentists who are using our preparations is that they are the best they ever used for what they are made to do.

READ ☞ As our goods stand on their merits we will send any one of our preparations in full size package to any dentist on receipt of 50 cts. to cover postage and packing or all of them on receipt of 50 cts. for each one sent for, or we will send them prepaid on approval for the price given; considering this a better method of advertising than sampling, knowing that it will make the dentist and his friends customers ever after.

If your dealer does not keep them, send to us for them and send us his name.
We refer you to any dental depot in N. Y. State as to our integrity and fair dealing.

MANUFACTURED BY

EXCEL CHEMICAL COMPANY,

1559 BROADWAY, BROOKLYN, N. Y., U. S. A.

SOLD BY LEADING DENTAL DEPOTS

STYPTICIN

In Stubborn Local Bleeding.
A convenient, effective and
prompt **HEMOSTATIC.**

Marketed as Powder and 3-4 grain Dental Tablets.
Interesting reports will be mailed to Dentists on request.

Cocaine Hydrochlorate Merck

Large Crystals, Small Crystals (flakes), and Powder.

A product of the highest possible degree of ***Purity,*** answering the severest tests, yet costing no more than other Cocaine Hydrocholate.

The Merck Products can be obtained of all dealers.

Merck & Co.

NEW YORK **ST. LOUIS**

DeBow's Nerve Capping and Root Canal Filling

Used in Capping Live or Exposed Nerves

This nerve capping is one of the greatest boon for the dentist ever discovered. It enables the operator to handle with ease all cases of exposed or sensitive nerves. It is just what its name implies, a paste nerve capping to cover the nerve preparatory to filling. It does not kill the nerve but leaves it in a good healthy condition. Why kill nerves when you can cap them with better results. One bottle will cap about two hundred nerves. Try a bottle and you will have no further trouble with exposed nerves, or no more nerves to kill.

TESTIMONIAL.

I find the DeBow Nerve Capping will do all you claim for it. I consider it the finest thing in my cabinet and would not be without it. Yours respectfully,

F. R. Deming, D.D.S., 207-8 Bamlet Bldg., Detroit, Mich.

Ask your dealer for it, or price by mail $1.00, large sized bottle.

DR. S. W. DEBOW, DENTIST

LINDENVILLE, O.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Cavity Cap Discs, and who also carry a general line of Dental Goods at popular prices.

Price of subscription, per annum, 50 cents; foreign countries, 75 cents.
Lowest advertising rates of any journal. Write for prices. Address,

THE TEAGUE SUPPLY CO.,

222 JACKSON ST. AUGUSTA GA.

ADRIAN S. RUTHERFORD

Manufacturer of and Dealer in Dental Supplies

289 PLEASANT AVE., NEW YORK CITY

When at the Dental convention at St. Louis do not fail to see our exhibit. It will include a line of prophylactic instruments, scalers and trimmers, made from patterns furnished exclusively to Mr. Rutherford by some of the advanced workers using such instruments. Mr. Rutherford expects to give demonstrations for one hour each day on different methods of crown work, introducing the latest improvements made by himself and others. Free samples of our goods will be distributed.

Dr. Abraham's
Oxyphosphate of Zinc Cement

Made in Germany

5 COLORS White Yellow Light Yellow Grey Light Grey

PRICES		QUANTITATIVE PRICES	
Per Box, - -	*$1.50*	*6 Boxes,* - -	*$7.50*
Extra Liquid, -	*75c*	*12 Boxes,* - -	*13.50*

GUSTAV SCHARMANN

Sole Importer

1181-83 BROADWAY, - - NEW YORK, N. Y.

MORE CASH FOR OLD GOLD

We Will Give You More in Cash

for your Gold and Platinum scraps and filings than you can get for it in trade.

We have been smelting and refining for twenty-two years, do a very large business and have the most improved and economical facilities for handling Old Gold, Platinum, bench sweeps, etc.

You Take No Risk

We send draft on receipt of every shipment, small or large, and hold same in its exact condition until we hear whether the amount is up to your expectations; if not, we return it, express prepaid. Could any proposition be fairer?

We are sure that if you send one shipment you will send them often.

You can also send us the accumulation of rubbish around your work-bench if you think it contains any gold, and we will give you its value in cash after deducting our small refining charges.

TWO LARGE REFINERIES

WENDELL & CO.

93-95-97 William St., NEW YORK
57 Washington St., CHICAGO

Doctor, Have You Ever Tried Eclipse Alloy?

SINCE Eclipse Alloy has been on the market, we have had nothing but praise about its superior qualities. We can safely assert Eclipse Alloy has no superiors and few competitors. It sets quickly enough, so that filling can be finished in one sitting; it has great crushing strength, rarely breaking below 500 lbs. pressure it has an expansion of one ten thousandth part of an inch during early stages of setting, ***absolutely no shrinkage*** and retains a beautiful, silvery white color. We guarantee it perfect, as every batch of Eclipse Alloy is thoroughly tested before leaving our laboratory.

Your dealer can supply you. If not, send for ⅛ Ounce Free sample, and be convinced that you have at last found the Alloy that will give you perfect satisfaction. Price, $1.50 Per Ounce.

The Eclipse Dental Specialty Co.

7 and 9 Warren St., New York City, N. Y.

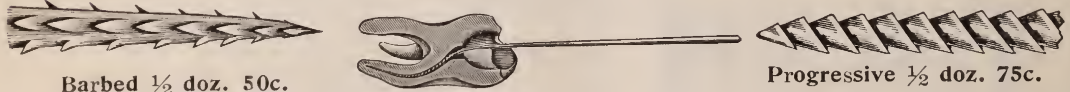
WM. HAHN

220 WASHINGTON STREET, CHICAGO

Manufacturer and Repairer of

Dental Instruments and Specialties

BROACHES



Barbed ½ doz. 50c. **Progressive ½ doz. 75c.**

The Old Reliable—all kinds and sizes. The best that skill and study can produce. Try the "Progressive" (Screw=Cut) for small and difficult canals.

Superior Dental Finishing Strips

Registered August 12, 1902, No. 9364

CARBORUNDUM—Made in three grits; Coarse, Medium, Fine, and in three widths: Broad, Medium, Narrow, or Assorted, as desired, seven inches long.

DIAMOND—Made in one grit only, and is for finishing and putting the final polish on the filling.

35 cts. per box of one gross or three boxes $1.00

A Free Sample for a postal card

Superior Dental Strip Co.

WATERLOO, N. Y.

Good Stationery
Is Good Advertising

BUSINESS AND SOCIAL
STATIONERY AND CARDS
WEDDING AND BUSINESS
INVITATIONS AND ANNOUNCEMENTS

Samples and Quotations willingly
furnished

The American Embossing Co.,
10-16 LOCK ST., BUFFALO, N. Y.

"DAYTON BROACHES"
(INDESTRUCTIBLE)

ARE THE BEST
THEY CANNOT BREAK

STRAIGHT

THEY ARE EFFICIENT

SPIRAL

DO YOU USE THEM?

TAPERED

Price, All Styles, All Sizes, $1.00 Per Doz.

DAYTON DENTAL SUPPLY COMPANY
S. W. Cor. 5th and Jefferson Sts., Dayton, O.

When a comparatively new material can SUPERSEDE the old standbys in the practice of EXPERIENCED DENTISTS, the argument resolves itself into a single word,

MERIT

This is exactly what RAMESITE CEMENT is doing.

The hundreds of dentists who have tried RAMESITE CEMENT, thus far, have duplicated and continue to duplicate their orders.

After you have tried all other cements
Try Ramesite

After all other cements have failed
Try Ramesite

If you have a piece of bridge work that persists in coming off
Try Ramesite

If you have a Logan or Richmond crown to set
Try Ramesite

If you have to fill a broken down molar—nothing but the walls of enamel left
Try Ramesite

If you have made a nice porcelain inlay and wish it to remain "A thing of beauty and a joy forever"
Try Ramesite

If you wish a durable filling
Try Ramesite

In filling children's teeth
Try Ramesite

In a wet cavity
Try Ramesite

If you are careless in the manipulation of your cement DON'T
Try Ramesite

RAMESITE is not a Careless Man's Cement.

Price per Package of Two Colors, $1.50. Write for Free Sample Package.

Manufactured . . . by H. G. KNAPP,

219 SIXTH STREET, - - - PITTSBURG, PA.

CHAUNCEY A. FLOWER'S

New Process Gold Cylinders

Is Guaranteed to be the best all-round Dental Gold in the world

Five reasons why YOU should give it a trial

First—Because it is the purest Gold on the market.
Second—Because it is the easiest working Gold.
Third—Because it is perfectly adapted for any kind of filling.
Fourth—Because it requires NO ANNEALING.
Fifth—Because it requires no special kind of Instruments.

It is soft and cohesive, but when properly condensed contours perfectly, finishes hard and takes on the finest polish.

In fact is just what all good Dentists are looking for.

The best Quality and Easy Working combined.

PRICES--1-16th, $2.00; 1-8th, $4.00; 1-2 ounce, $15.00; one ounce, $30.00. Cash must accompany all orders.

C. A. FLOWER, 145 S. McKean Street, Kittanning, Pa.

Do You Sterilize

As much as you Want to?

As much as you Ought to?

Our Electric Sterilizer

IS

Convenient, Attractive, Durable
Economical, Reasonable

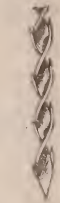
Always at hand where your patient can see it

The Best Sterilizer Made

ADDRESS,

ELECTRIC STERILIZER CO.,
ST. PAUL, MINN.

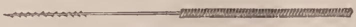
Can Be Tied In a Knot



CAN NOT BREAK

"MILES"

BROACHES



75c. (Patented) $1.00

PATENTED

Price per set of Three, 50c.

The Miles Steel & Tool Co.,

Middletown, Ohio, U. S. A.

Dr. J. C. Graft's New Flexible Singerpore Disks

in Emery and Carborundum, are particularly useful for trimming natural teeth and roots for crown work, for grinding porcelain crowns, inlays, enlarging spaces between teeth, etc. These disks are very thin, rapid cutting, and flexible and both sides are alike.

Price per dozen, 50 cents

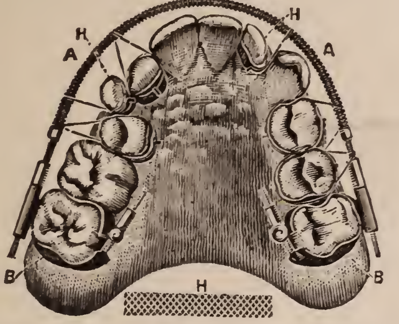
Terraplastica—A moulding compound—for taking impressions, casting metal dies, for rubber work—for investing gold work—absolutely has no superior.

Other Specialties—Perfect Impresion Varnish—Superior Base Plate—Improved Dental Plaster—Bridge Repairing Pliers—are essential adjuncts to every denlaboratory. Send for ourBooklet.

TERRAPLASTICA MFG. CO.

5 W. PARK ST., NEWARK, N. J.

Parts "A-B-H-G" are used in this case.
Price, including wrench, $3.00



The Arch in above cut stands further from the teeth than in an actual case. This is done to better show the Arch and Ligatures.

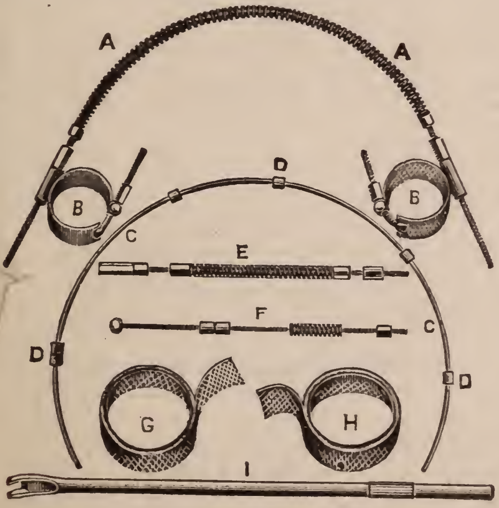
The J. E. Canning

Improved Regulating

AND

Retaining Appliance

This cut shows the combination most used, not only for enlarging the Arch, but for individual tooth movement. The portion of the Arch which surrounds the anterior teeth is fitted with a **Removable Spiral Jacket,** which retains ligatures at any angle from the moving tooth. The Arch can be used with or without this Jacket as the case may require.



Price $5.00

PRICE OF PARTS:

A	Expansion Arch	80c.
B	Adjustable Clamp Bands, each	80c.
C	Retaining Wire	30c.
D	Retaining Tubes (6)	30c.
E	Elastic Pressure Jack Screw	80c.
F	Elastic Tension Traction Screw	80c.
G	Indented Band Material, .004	25c.
H	Indented Band Material, .003	25c.
I	Wrench	15c.

The Improved Jack and Traction Screws, as seen in the complete set, exert a **Constant, Uniform** and **Elastic** pressure against the moving tooth, and when once adjusted, positively need no further attention. The nuts all remain **Stationary**, the spring follows up **Automatically** the moving tooth and also acts as a **Positive Nut Lock.**

All Band Material is **Rough** or **Indented** and will never slip from the cement.

Booklet containing full instructions for attachment comes with all parts.

Appliances adjusted to models.

ASK YOUR DEALER OR WRITE TO

J. E. CANNING, P. O. Box 869, Denver, Colo.

Dentist's Ledger Outfits

Prices in reach of all. Equipment Practical Designed by Business Engineers

Holds from one sheet to two thousand and in perfect alignment. Do the others you have seen?

Victor End-Lock Loose-Leaf Sectional Post Binder.

Leaves always carried in stock in standard form. Any forms prepared on short notice

This is not the only labor-saving device we have to offer you, but if you will write us telling us the condition you are working in and under we will outline a system for you and submit it with prices. No charge for it unless it suits and then only for the supplies.

PRICES OF STOCK OUTFIT

1½ bound canvas binder
1 A to Z Index........
300 Stock Leaves......
$7.50

WRITE US FOR PARTICULARS

H. C. Miller Company
Business Engineers, Consulting Accountants, Manufacturing Stationers
2-6 Broadway, Milwaukee

H. C. MILLER & CO.,
Milwaukee, Wis.

Please send sample sheets of Dentist's Ledger and see my letter for inquiries.

....

....

In Sozodont Tooth Powder

The Dental Profession will find the realization of a long felt want. Possessing in addition to its alkaline, astringent and detergent properties, three other characteristics of prime importance for the maintenance of oral hygiene; it is ***antiseptic,*** absolutely ***unfermentable*** and so ***smooth*** that when a portion is rubbed between two fingers or the palm and fingers, ***not one particle of grit can be detected.*** It is moreover composed of the purest ingredients obtainable and so perfectly blended that there is no residue to react upon the tooth structure or upon any substance used for filling or crowning. Many dentists have tried this powder and have testified to its merits in terms of unqualified endorsement. Won't ***you*** test it as well?

SAMPLES AND ANALYSES CHEERFULLY FORWARDED UPON REQUEST.

ESTABLISHED 1848. *HALL & RUCKEL,* *NEW YORK CITY.*

"The Powder that keeps teeth clean and gold work bright."

THIRD SERIES
VOLUME XXXV
THE OLDEST DENTAL MAGAZINE IN THE WORLD
NOVEMBER 1904
NUMBER 11

THE AMERICAN JOURNAL OF DENTAL SCIENCE

ESTABLISHED IN 1839

AN INDEPENDENT DENTAL MAGAZINE PUBLISHED BY DENTISTS FOR DENTISTS.

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D.D.S. MADISON, WIS. U.S.A.

When You are Ready

to subscribe for the dental magazines you wish to take next year, drop us a line stating those you will want and we will be glad to quote you our rates on them.

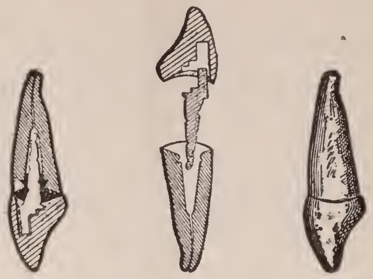
We shall be pleased to answer all letters of inquiry.

If you subscribe now, the remaining issues of this year will be sent you free.

WM. GIRD BEECROFT, D. D. S.
MADISON, WISCONSIN

The Whiteside Crown

(Patented March 17, 1903, February 9, 1904)



A PERFECT TOOTH CROWN

Strongest, - Easiest to Adapt,
Widest Range of Adaptability

Ever see a **Lower Bicuspid** porcelain crown, fashioned after the shape of Natural lower bicuspids, ready to mount without grinding to death?

The **Whiteside Crowns** include an assortment of these among a full line of Incisors, Cuspids, and Bicuspids, of natural shapes and life-like translucency and shadings.

The bases of all Whiteside Crowns are so shaped that grinding is reduced to the minimum.

Booklet--A Treatise on Crown and Bridge Work--sent free on application.

The Whiteside Dental Man'f'g Co.
(INCORPORATED)
DENTAL SPECIALTIES. YOUNGSTOWN, OHIO, U. S. A.

MORE CASH FOR OLD GOLD

We Will Give You More in Cash

for your Gold and Platinum scraps and filings than you can get for it in trade.

We have been smelting and refining for twenty-two years, do a very large business and have the most improved and economical facilities for handling Old Gold, Platinum, bench sweeps, etc.

You Take No Risk

We send draft on receipt of every shipment, small or large, and hold same in its exact condition until we hear whether the amount is up to your expectations; if not, we return it, express prepaid. Could any proposition be fairer?

We are sure that if you send one shipment you will send them often.

You can also send us the accumulation of rubbish around your work-bench if you think it contains any gold, and we will give you its value in cash after deducting our small refining charges.

TWO LARGE REFINERIES

WENDELL & CO.

93-95-97 William St., NEW YORK
57 Washington St., CHICAGO

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

UNIVERSITY OF PENNSYLVANIA

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

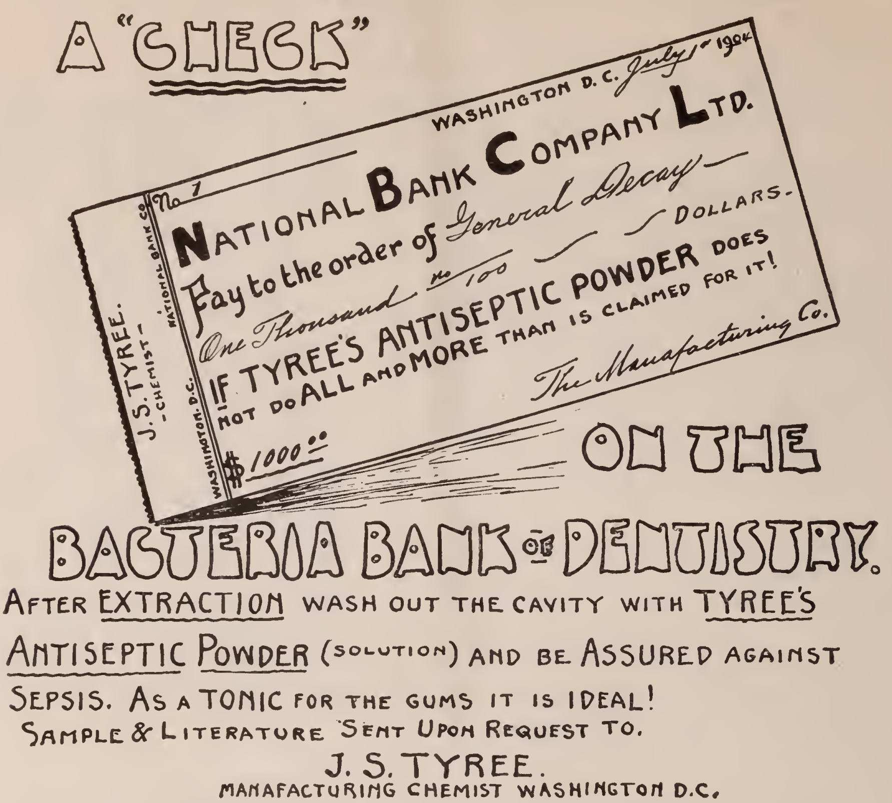
EDWARD C. KIRK, DEAN,
Dental Hall, Cor. 33rd and Locust S

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903.
Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

WILBER F. LITCH, M. D., D. D. S., Dean,
1507 Walnut St.



A "CHECK"

WASHINGTON D.C. July 1st 1904
No 1
NATIONAL BANK COMPANY LTD.
Pay to the order of General Decay—
One Thousand no/100 — — DOLLARS.
IF TYREE'S ANTISEPTIC POWDER DOES NOT DO ALL AND MORE THAN IS CLAIMED FOR IT!
The Manufacturing Co.
$1000.00
J.S. TYREE. -CHEMIST-
NATIONAL BANK CO.
WASHINGTON. D.C.

ON THE BACTERIA BANK OF DENTISTRY.

AFTER EXTRACTION WASH OUT THE CAVITY WITH TYREE'S ANTISEPTIC POWDER (SOLUTION) AND BE ASSURED AGAINST SEPSIS. AS A TONIC FOR THE GUMS IT IS IDEAL!
SAMPLE & LITERATURE SENT UPON REQUEST TO.
J. S. TYREE.
MANAFACTURING CHEMIST WASHINGTON D.C.

TABLE OF CONTENTS.

November, 1904.

Page

Opening Lecture, Baltimore College of Dental Surgery, Session 1904–5—B. Holly Smith 197

Suggestions Relating to the Examination of Teeth—Charles G. Pike 203

Arsenical Treatments in Compound Cavities Confined With Cotton and Sandarac Varnish—C. M. Baldwin 204

A Study of the Best Means of Local Anesthesia for Extraction of Teeth—E. Sauvez 206

Apparent Trifles 209

Book Reviews 210

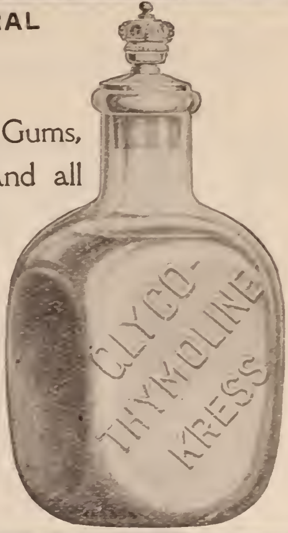
Tyree's Antiseptic Powder 211

A Cause of Pulp Congestion 213

GLYCO=THYMOLINE

IS INDICATED WHEREVER THE ORAL SECRETIONS ARE FOUND TO BE ACID.

In Pyorrhea, Alveolar Abscess, Spongy Gums, Chronic Ulceration, Abscessed Antrum, and all Abnormal conditions of the mouth the **Alkaline Antiseptic** treatment cannot be too strongly advocated.



SPECIAL OFFER.—This Sprinkle Top Bracket Bottle, together with samples for your patients, will be sent free to any dentist mentioning this journal.

Kress & Owen Company,
210 FULTON STREET. NEW YORK CITY.

THE ALKALINE ANTISEPTIC

"THE IDEAL ADJUVANT"

DENTACURA

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties*, than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

SAMPLES AND LITERATURE FREE

ADDRESS,

Dentacura Company,
NEWARK, N. J., U. S. A.

The Best Antiseptic for a Dentist's Prescription

LISTERINE

A true prophylactic

Listerine exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

"THE DENTIST'S PATIENT". An interesting little brochure on the care of the teeth, will be forwarded upon request, together with a new pamphlet of 32 quarto pages embodying:

"LISTERINE UNDER THE MICROSCOPE". A tabulated exhibit of the action of Listerine upon inert laboratory compounds.

"COMPARATIVE VALUE OF CERTAIN ANTISEPTICS". An interesting showing of the comparative value and availability of various antiseptics in the treatment of diseases of the oral cavity.

"EXPERIMENTAL RESEARCHES". A report by members of the Association of Analytical Chemists of the Pasteur Institute, Paris, concerning the antiseptic action of Listerine.

LAMBERT PHARMACAL CO.

SAINT LOUIS, U. S. A.

Be assured of genuine Listerine by purchasing an original package.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE
ESTABLISHED IN 1839

THE OLDEST DENTAL MAGAZINE IN THE WORLD
INDEPENDENT--------PUBLISHED BY DENTISTS FOR DENTISTS

VOLUME XXXV
NUMBER 11
THIRD SERIES
NOV.
1904

EDITOR:
WM. GIRD BEECROFT, D. D. S, Madison, Wis.
ASSOCIATE EDITORS:
ALBERT H. KETCHAM, D. D. S., Denver, Colo
EMORY A. BRYANT, D. D S., Washington, D. C.
GEO. S MARTIN, D. D. S., L. D. S Toronto Junction, Ontario.
Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.
Address all communications, both business and editorial to the editor
Entered as Second Class Matter, Madison, Wis.

OPENING LECTURE, BALTIMORE COLLEGE OF DENTAL SURGERY, SESSION 1904-5.

B. HOLLY SMITH, M. D., D. D. S.

Gentlemen:—I bring to you the cordial greetings of the faculty. We welcome you of the senior and junior classes as old friends. Some of you have journeyed far in your vacations. All, we hope, are here with renewed strength and spirit for the work of another college year. How fortunate it is that even when the task is difficult, a little rest and change bring us to its undertaking with an earnest determination for its accomplishment. Then, too, it should be pleasant to feel a comradeship and sympathy in the work; we are here to undertake it together,—teachers, students, all for it and at it with a will.

To the freshmen I bring a most friendly welcome. You, as strangers, we especially wish to make feel at home, to introduce you to the work in such a way that it may seem attractive; to encourage your every hope and ambition for earnest and fruitful work. Some of the training will no doubt be strange and confusing. Be patient and don't expect to do too much at once, though lose no time in taking hold of any threads within your grasp.

As it is the custom of those in authority on fete days and festival occasions to give gifts and announce promotions, I present from the faculty to the sophomore class promotion to the junior class, and that there may be no invidious distinction, the juniors are promoted to the senior class and may hope for graduation this year. Now this is a wonderful exhibition of generosity on the part of the faculty, and it is hoped that it will be appreciated, as it is the first time in the history of the school that such wholesale advancement has been granted.

You are all here to make the best of your opportunities in the study of Dentistry, and most, we must assume, look upon the effort as something to bring occupation, livelihood and position in the world. The accidents which influence the selection of a vocation are too many for us to assume that you all come charged with an adequate knowledge of what the profession of Dentistry really is. If you have rightly chosen your profession, however, it cannot fail to be of interest to you to glance back at its history and at those changes that have taken place in the methods and in the preparation for it as a calling.

With the time allotted me tonight it is manifestly impossible to go into its ancient history. The ingenuity and resourcefulness of man in all ages has been exhibited, in some effort to assist nature mechanically, that is, to furnish some artificial substitute for the losses resulting from disease and accident; but as far as recorded, these efforts have been desultory and not based on any scientific record or mechanical training, since neither tradition, records nor mummified or fossilized remains of early ages, show any similarity or concerted procedure.

Hippocrates, about four hundred years before the Christian era, is about the first whose writings show any appreciation or recognition of diseases of the mouth and teeth, and their relation to diseases in general. In 1716 we have a record of a dentist, Laudemiey of Paris, being called upon to perform an operation on the mouth of Philip V of Spain, and in 1723 he announced himself dental surgeon to his catholic majesty, King Philip V of Spain. In 1728 Fouchard published two volumes denominated "The First Attempt to Systematize and Treat Methodically the Dental Art." Many others attained eminence in France, among them Jourdain was so highly esteemed by the medical men that they frequently had him in consultation. Later in England, Hunter published a treatise on dentistry, to be followed afterwards by Fox and Blake.

During the Revolutionary War there came to this country one Le Maire, a Frenchman, who was the first among us to show superior skill in dental art; he not only did some acceptable work but gave training to others. Among other importations we had Gardette from France, Wolfingdale from England, Edward Hudson of Dublin. Mr. Greenwood was about this time perhaps the most eminent native dentist, conspicuous for his distinguished service to George Washington.

These individual practitioners, standing aloof from each other, often bitterly jealous and unfriendly, gave little promise of any help in the development of professional dentistry.

There are three significant factors in the growth of what we now recognize as professional dentistry: first, the organization of this, the first dental college; second, the publication of the first dental journal; third, the organization of the first dental society. The schools, of course, were essential to train men not only as specialists on the diseases of the mouth and jaws, but to give them that skill in the use of tools and materials utterly unknown to the general practitioner of medicine; the dental journal to publish to the world the researches and accomplishments of the profession, as well as to acquaint each member with what was being done by the others; while the dental society brought the profession in touch one with another, and beside an improvement in materials and methods, made possible that esprit de corps, or professional ethics which has lifted us above the sordid methods of the commercial classes. These have all contributed to make dentistry what it is today, and lacking any of them its growth would have been less rapid.

Before the inception of these enterprises, dentistry was a cult or calling with many able practitioners, it is true, but practically without exponents. Demonstrations were rare, methods of practice were secret; materials and their individual manipulation were guarded carefully from all rivals. The dental laboratory was a locked room and could only be entered by the apprentice after an ironclad oath never to reveal its secrets. Indeed, surgery itself was discredited, and in many countries, "saw-bones" as much a term of reproach as "tooth-carpenter."

Strange to say the dental college, journal and semi-national society were in great part, the work of two men who were at that time Baltimoreans,—Chapin A. Harris and Horace M. Hayden. These men were hard workers, great students and soon to be prolific dental authors and translators of works on medicine and kindred subjects. Harris was a man of powerful physique, great pertinacity of purpose, and I have often been told by those associated with him, he had greater capacity for work than any man they had ever known. So it seems to have been with the pioneers of all ages, the task is set, the courage and capacity given. Harris had great personal dignity associated with no little vanity and self-confidence. He recognized his own qualities as a leader and was not a little jealous of his reputation as such. His extreme sensitiveness to criticism involved him in many contentions, some of which assumed great bitterness.

Hayden was a much older man. The fires of his youth had burned out in the many enterprises of his early life. He had been a sailor, traveler, geologist, mineralogist, dentist, doctor of medicine and prolific author.

An item in the book review of the *New York Times* of recent date, states that as much as $500 has lately been offered for a single treatise of his on geology. He was unquestionably a man of broader culture and greater learning than Harris, but his advanced years and more retiring disposition had to succumb to the virile domination of the latter, and in the early history of their association, Harris was the master.

The medical associates with these men, Bond and Baxley, were experienced lecturers and authors; men of force and power in their profession and community.

It is not strange then, so well manned was this new faculty, that support and endorsement came from many quarters. There was little money, however, and poor equipment. Part of the work of the department of anatomy was conducted in a stable-loft. For the first year, I have been told, the instruction was "mostly wind," very few practical demonstrations or clinical operations were performed. This was corrected soon, however, and from those days to these,—with perhaps the exception of the period during the Civil War,—the history of the B. C. D. S. has been one of uninterrupted effort and successful achievement.

It is interesting to note the various changes that have taken place in the conditions upon which the dental diploma has been awarded. The first sessions of the early dental schools were of about four months' duration. For the beginners, two of these short sessions were demanded, but there were many men in dental practice whose proficiency was recognized and either an honorary degree granted, or they were graduated after an examination. The sessions were subsequently extended to five months and a credit of one term granted to those who had been in practice five years. This was often abused and by a stretch of imagination, collecting dental bills, doing chores about a dental office, or sitting about watching a vulcanizer, was taken in lieu of a genuine practice of dentistry.

This condition prevailed until the late dean of this school, Dr. R. B. Winder, a man of superior judgment and ability, conceived the necessity for uniting all the colleges into one organization, so that legislation might be enacted, raising the standard of dental teaching and requirements. He called a conference of deans of Philadelphia and New York schools, and out of this developed the National Association of Dental Faculties, which association has since controlled the standards of entrance and teaching requirements. The five years' practice as equivalent to one session at college, was quickly abolished; the bestowal of honorary degrees met the same fate, and six months' session substituted for five. Later on the session was lengthened to seven months, and a three year course took the place of the two year, until finally in the fervor for extending the course, four years was named. It was found, however, that so many considered this impractical and unnecessary, that the Association has rescinded this requirement and returned to three years of seven months.

Preliminary requirements were unknown in the early days of the profession, but have persistently increased of late until by the next session, or perhaps the one following, students will be compelled to have a high school education, at least, before beginning the study of dentistry.

The methods of teaching have greatly improved. Technical instruction and demonstration increased, subjects added to the curriculum. Thus rapidly dental training has increased in efficiency; now what must be the effect upon the product, the dental graduate? He will not find himself in competition with unprepared men, and he will not succeed if he himself is unprepared.

The American Journal of Dental Science was the first dental journal published, and was the outgrowth of a plan to bring the honorable practitioners of dentistry together, liberalize their views of practice, as well as afford a means of publishing the proceedings of the Dental Society and the lectures and addresses of the professors of the B. C. D. S.

Its publication was begun in 1839 and was accomplished by a board of editors,—Eleazar Parmly, Elisha Baker and Solyman Brown. Subsequently Chapin A. Harris and Solyman Brown were its editors. The first volume was published by the private enterprise of these men; afterward, until 1850, the journal was published under the auspices of the American Society of Dental Surgeons, and the subscription price raised from $3.00 to $5.00.

Many books on dental subjects which had been published before, were here republished, necessary translations being made by professors of the B. C. D. S. Contributions were invited and published from dentists at home and abroad. Its pages are interesting reading yet, and evidence literary style and a learning that will compare favorably with any publication of its day. This journal has had almost a continuous publication until the present time, though it has changed hands several times.

Many other journals were added to this one, such as "The News Letter" (now out of publication), "Dental Cosmos," "Dental Digest," "Dental Review," "Dental Luminary," "International Dental Journal" and numerous others.

These journals, most of them exceptionally well published and edited, are, with the exception of the International Dental Journal,* published by supply houses. This is a source of great regret and mortification to many practitioners of dentistry. They believe the journals should be in the hands of the dental societies, and consequently entirely free from any connection with dental dealers. The difficulty has always been the expense. Illustrations are expensive. The "International" has had a hard fight, as there are so many competitors in the field, and is not yet free from debt. It cannot be denied that this association with commercialism has been more or less profitably employed in most dental publications. So tactful, so liberal, so yielding, has the management been, that objections have grown to be regarded as mere sentiment. No scientific journals have given greater evidence of merit (from the publishers' standpoint), illustrations have been abundant, editing capable; and yet in some quarters there is a feeling that it would be more dignified to have the profession represented by some such independent publications as the "American Medical Association," or "American Medicine."

It seems to me fit opportunity to suggest to you young men that this is an auspicious moment to start some such organ here in our midst, the "Journal of the B. C. D. S. and Its Alumni." You might start it as a quarterly. The bright things you might write would be gladly received by the graduates, as well as matriculates of the school. Then, too, you would serve to establish a system of communication between your fellows of long ago and your alma mater.

As early as 1817, Dr. Hayden proposed the formation of a national dental society, and visits were made to Philadelphia, New York and Boston to further this purpose, and yet it was not until 1840 that some fifteen or twenty men met in New York to organize the "American Society of Dental Surgeons." Dr. Hayden was elected the first president; Dr. Harris, secretary.

Three years later, this association numbering one hundred and twenty-five members, met in Baltimore, and Dr. Harris in his address said, "In all great movements, either in religion, politics, science or benevolence, the American character and the popular genius of all our institutions immediately direct us to lay hold of the great principle of voluntary association, as an agent of stronger moral power than any known in the country, to effect any desirable good. We have no wealthy and powerful privileged orders to command any given amelioration or improvement, and hence we combine the power of popular number and bring it to bear upon the objects we desire to accomplish. This national peculiarity accounts for the numerous benevolent and scientific associations found in the United States, before the moral power of which vice, ignorance, empiricism, bigotry, oppression, and long-established habits and modes of thinking are fleeing away like mists of morning before the rising sun. This will furnish the reason why America can boast of the first society of Dental Surgeons ever associated together in the world; and of this association shall produce results in any manner comparable to those produced by other American associations, now the wonder and praise of the world, the character of an American dental surgeon will stand as high on the archives of science as do the names of Washington, Franklin, Hancock, Henry and Jefferson on the roll of freedom, or Mills, Judson, Perkins and Hill in the annals of American missionary benevolence."

---

*The American Journal of Dental Science already referred to in this paper, is also an independent dental magazine, being owned, edited and published by members of the dental profession.—Editor.

Now, while the oratory of the paragraph just quoted may be a little too fervid to suit the modern idea of reserve in public speech, yet it may serve to bring back to us the florid style of a by-gone time, and give us some idea of the reverence in which the man held his calling, and the energy he put into his work for its uplift.

The society before which he made this address demanded unqualified evidence of moral character as well as practical ability. Its fees were of two kinds: ten dollars for members of acknowledged standing and ability in the profession and twenty-five dollars for beginners who underwent an examination preliminary to their admission. It had a continuous and useful life of sixteen years, when it was finally dissolved through bitterness engendered by contentions about the use of amalgam. Many prominent members held that the use of this now indispensable material was equivalent to malpractice.

The American Society of Dental Surgeons was succeeded by the American Dental Convention, a body without constitution or by-laws, a simple, open meeting or conference.

This organization was of short duration, and was itself succeeded by the American Dental Association, which held its first meeting at Niagara Falls, 1859. This was from the first a delegate body and had a successful and continuous existence until merged with the Southern Dental Association, into what we now proudly recognize as the National Association.

For over twenty years it had been considered desirable by many to have all sections of the country involved in one central organization. The Southern Dental Association had grown into almost equal importance with the American. Effort after effort had been made to unite the two, but the most that had been accomplished was to confer. Antagonisms partly engendered by the Civil War might be held responsible, though many Southern men were members of the American.

Finally I, as president of the Southern Dental Association, at a meeting held at Old Point Comfort, recommended in the annual address that committees of the two associations be appointed to consider this most desirable object. Dr. Thomas Fillebrown of Boston, a prominent member of the American and others were enthusiastic in support of the idea. Thanks to the ripeness of the time and more thanks to the persistent and untiring efforts of the many loyal advocates of this cause, the union of the two associations was accomplished. Dr. Fillebrown has never received half the credit he is entitled to. Both committees worked hard on matters of detail, but his efforts were unceasing. With the hearty co-operation of all of us who were friendly to this cause, success was finally achieved and the National Dental Association held its first meeting at Old Point Comfort in 1895, with Dr. Fillebrown as its first president.

The consummation of these efforts secured to America for the first time one authoritative body whose decisions upon any scientific subject, matter of practice, or question of policy, are accepted the world over; as witness the question of the formation of the Fourth International Congress. The National Association appointed a committee of organization for the Congress. The Federation Dentaire Internationale, an association with seventeen nations represented in membership, also appointed a committee. Much dispute and contention arose as to authority, but it was decided that the National Association through its committee should organize the Congress, and it resulted in the largest and most successful congress in the history of dentistry.

We have not time here to take up the history of any of the many prominent local societies, but they are doing good work; and right here I will say that when you are graduated, your loyalty to your profession and your fidelity to the teachings of your alma mater, demand that you lose no time in associating yourselves with one of these bodies; and your ambition should not stop short of being a delegate to the National. Your association with dental societies will prove a post-graduate course of study, which will more than repay you for any expense or sacrifice you make; and we, as your teachers, will feel proud that you have not fallen into that selfish oblivion which has engulfed so many, and which shows such small appreciation of your advantages.

Our parental relation will not allow us to close this address without a personal word directed especially to the stranger who is within our gates; but to you all I bring the admonitions which you may find appropriate.

This is the beginning of a life that is to be different from the old life at home. It should be to all of you a pleasant and happy prelude to the mature years of responsibility and professional labor which await you. I counsel you to make the most of your opportunities in your college life. First, fritter not the days away in idleness, guard well your conduct toward your fellow, lose no chance to make and keep a friend. Be not unmindful of what is expected of you from home. Do not neglect any opportunity which the school offers for your advancement in your studies. Live sane and wholesome lives. Do these things, and the memory of your college days will bless you throughout the remainder of your life.

This is a happy time to begin the study of dentistry. At no time in the history of the world has there existed such a wide field of usefulness for the dentists nor such a keen appreciation awaited his successful practice. Only a short time ago the dentist, in common with the general surgeon, had little of the respect and honor freely accorded the general practitioner of medicine. Today these distinctions are forgotten in a general appreciation of his helpfulness and culture. When your labors shall happily culminate in the bestowal upon you by our worthy dean of a scroll bearing your name and ours, you will hear him say that he gives it "with all its rights and privileges and subject to all its responsibilities." If then this is a propitious time to begin to prepare for the practice of dentistry, it is also a time when more, much more, is expected of you. To guard against any unworthy entrance to your profession, more time is spent in your training, rigid examinations to test your fitness are given by your college, and finally after you have graduated, a Dental Examining Board will have to pass upon your fitness before you will be allowed to practice.

To prepare for these tests, the beginning must be made now, not next month or next week, but tonight the resolution must be made. There is no royal road to success in this nor any other department in life, but may be attained only by what Dr. Osler calls the "secret of life as I have seen the game played." Some years ago he said to a body of students,—"I propose to give you the master word of success. Though a little one, it looms large in meaning. It is the open sesame to every portal, the great equalizer in the world, the true philosopher's stone which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright, the bright man brilliant and the brilliant man steady. With the magic word in your heart all things are possible, and without it all study is vanity and vexation. To the youth it brings hope, to the middle-aged confidence, to the aged repose. It is directly responsible for all the advances in medicine during the past 25 centuries. * * * Not only has it been the touchstone of progress, but it is the measure of success in every-day life.

"And the master-word is WORK—a little one, as I have said, but fraught with momentous sequences if you can but write it upon the tables of your heart and bind it upon your forehead."

The eighth annual meeting of the Southern Branch of the National Dental Association will be held Feb. 21–23, 1905, at Memphis, Tenn.

J. A. Gorman, Cor. Sec'y,
Asheville, N. C.

SUGGESTIONS RELATING TO THE EXAMINATION OF TEETH.

By Charles G. Pike, D. M. D., Boston, Mass.

(Written for the American Journal of Dental Science.)

Can anyone tell me how one may derive more benefit and pleasure for oneself than by gazing upon something that is of special interest to them?

For instance of course you all remember your first visit from home how carefully and critically you watched everything and on your return you spent much time in thinking, talking to yourself of the many beautiful, wonderful things which you had seen. How impressing, how lasting were those first impressions, am sure you will never forget them as long as you live.

Now, gentlemen, a number of months, yes, years have passed since we first traveled or looked over this ground, and in the intervening time it has been our custom to travel, or better see it daily. Are we as critical and careful in our observation as we were on our first examination of the object or whatever it might be. I am afraid we do not pay as marked attention as we should.

Now do you suppose that there is any one present that has forgotten his first patient, the first examination that he was called upon to make?

How carefully observingly you went about it not failing to ask many questions, many no doubt entirely uncalled for. In all probability you had taken at least a good half hour if not longer in making your first examination.

How many of us now spend as much time? Wouldn't our diagnosis of a case be more successful, not only to ourselves, but to our patients if before remarking about a filling or the treatment of a certain case we gave it a few moments careful thought. How quickly a patient will question us and especially if we have made a statement that would have been better unsaid.

In order to make a proper examination of course the teeth should be thoroughly cleansed but this is not always necessary in every case.

A perfect examination in my opinion is not an easy thing to make. I do not mean that we all are not capable of doing it properly but simply that we must give it as much care and attention as any filling that we put in. Time is a very important factor and should always be considered.

How often you will hear patients say, they have not been satisfied with the operations and opinions of others and asking at the same time a careful examination of their teeth.

In making an examination I have always made it a plan to first dry the teeth as much as is possible with napkins and rolls and then proceed to examine beginning at the sup. right third molar or as near it as possible if such teeth are lacking: exploring with any suitable explorer every surface before passing to the next.

It is especially wise to explore every fissure and groove very carefully never relying on the eye for a decision for so often exploring in this manner you will find spots which upon being broken down are found to be quite large and could have been detected in no other way.

After following these directions with each tooth of the superior arch I then take silk and make as careful an examination as I can of the approximal surfaces. If there is the slightest doubt in my mind about the condition of any of these surfaces I suggest a wedge. I am a great believer in wedges and know of nothing that can be used, if used with ordinary precautions with less discomfort to the patient or better advantage to the operator.

It seems to me to be the only correct way of examining doubtful approximal surfaces. If there is the least particle of doubt a small wedge for a few hours will place you on a firm foundation and that is what we must have in order to do satisfactory work.

Now the question that some one will ask is, Are the patients willing to allow this wedging. In some cases I will say that they will object at first, but after spending a few moments explaining the importance of it they will readily consent and I am sure that after the first examination they will see for themselves the importance of it and you will never be criticised thereafter.

Oftentimes your patient will get so accustomed to rely upon the wedge for a diagnosis that before making their semi-annual or annual visit to you, as the case may be they will of their own accord insert wedges in doubtful places, so that if there is any trouble it can be detected at once.

Most any chart is suitable for an examination record, but a chart record should certainly be kept of each month for reference at any time. It is of special value to the operator in saving time, for by a hasty examination of it just before the appointment he can readily see what there is to be done and be ready to begin upon the arrival of the patient. Personally I use them to make notes on in regard to the patient or anything that is of special importance to me.

In regard to a fee for this work? Is there anything we do that requires any more attention on our part. If we take ten or twenty minutes for a small operation on a patient we expect a suitable fee. Then why shouldn't we expect the same from a patient after we have made an examination and pronounced the mouth in good condition, if such is the case? It is just as much of an operation as anything we do and we should certainly receive proper remuneration for it.

In closing, gentlemen, let we state that if there are any present who have at times allowed themselves to be laxed in this apparently simple operation, I hope from now on will try and make this one of their ideals and objects in their profession, for in order to attain the height for which we are all striving we must do our best at all things.

There occurred this short article in one of the recent publications of the *Cosmos,* which, with your kind permission, I will quote. Its subject is Purpose in Life:

Whoever desires to cultivate his firmness of purpose does well to begin with this leading one: He must have a definite aim, and keep it strictly in view; to it he must steadily direct his efforts and apply his powers. If he does this he will soon acquire a facility in its details which can come in no other way and his interest in it will increase, for we always like to do that which we can do well.

Of course whether or not he will actually attain to that on which he sets his mind must depend upon the aim itself. He may aspire to be a great artist or statesman or lawyer or architect, and never be able to reach the goal; but his persistence will enable him to come as near the mark as his powers will allow, which is all that any man can do; whereas with tenfold the ability, but with no steadfast purpose, he would have fallen far short of the place he now occupies.

Success in its best sense is not always found in attaining that for which we plan, but rather in making the best that can be made of ourselves, doing as well and rising as high, as high as our powers will allow. As the Poet Young has well said—

Thy purpose firm is equal to the deed.
Who does the best his circumstances allow,
Does well, acts nobly; angels could no more.

ARSENICAL TREATMENTS IN COMPOUND CAVITIES CONFINED WITH COTTON AND SANDARAC VARNISH.

By C. M. Baldwin, D. D. S., Chicago.

(Written for the American Journal of Dental Science.)

In compound approximal cavities in bicuspids and molars extending to or below the gums, when for any reason anesthesia methods are contra-indicated for the removal of live pulp tissue, arsenic will continue to be used.

Probably all dental students are instructed to carefully cover arsenical treatments with either cement or guttapercha, and cautioned to never use cotton for such a purpose.

In this class of cavities when the gums cover more or less of the cavity, it requires considerable time and care to confine arsenic with cement or guttapercha, and too often arsenical poisoning of the gums results after every effort has been made to prevent it.

Many times one or more sittings will be required to pack the cavity with cotton or guttapercha to force the gums out of the cavity, or the gums must be cut away, when it will be more difficult to place and confine the arsenic at that sitting without leakage resulting.

Often it is exceedingly difficult, many times it is impossible to adjust the rubber dam in these cases until some preliminary measure has been taken to exclude the gums from the cavity, or it may be necessary to fill a portion of the cavity to temporarily or permanently raise the gingival margin, so that the saliva may be excluded by the rubber.

Can cotton and sandarac varnish be used successfully in this class of cavities to control arsenical preparations from one to three days?

Several years ago at a charity clinic Dr. C. T. Gramm used cotton and sandarac varnish to cover an arsenical treatment.

The writer has gradually come to use this simple method for the same purpose in all large cavities as mentioned above, to which may be added occasional cavities in the six anterior teeth where the same principles are involved, and as yet without a single leakage having been found.

Cotton and Sandarac Method.—Excavate and medicate the cavity as desired, but do not cut margins too much in large open cavities, as they help retain the plug.

The rubber is never applied in these cases, but dryness is secured by the use of cotton rolls, the Hare mouth prop and the saliva ejector, as may be needed.

The cavity and surrounding parts should be thoroughly dried, including the surface of the tooth facing the cavity and the gums between, and should be kept so until the packing is completed, the varnish applied and congealed.

When necessary, the gums between the teeth may be treated with alcohol, chloroform, 4 per cent. trichlor acetic acid or adrenalin chloride 1-1000 to control moisture.

Cotton pellets of suitable size should be prepared, so that from two to four will be sufficient to pack the cavity and space to the adjoining tooth.

If a moistened arsenical preparation is used, do not put the pellet of cotton into it, but with a small pointed instrument place the arsenic on a very small dry piece of cotton, so that the pellet will not be completely moistened if pressure is applied.

In most cases an adjoining tooth aids the packing and retention of the plug, and all such cases should be partially packed before the arsenic pellet is placed.

Pack one or two large pellets of dry cotton between the adjoining tooth and the side margins of the cavity, so that the cotton is wedged in firmly, compressing the gums, filling the space to the contact point, and extends on the floor and walls of the cavity to the exposed pulp.

The arsenic pellet is now easily placed, being supported by the packed cotton, and one or two more pieces of cotton are packed, bridging over the pulp to the walls of the cavity, completing the plug, when the varnish should be applied immediately at the gum line, afterwards on the occlusal surface, but stop short of saturation, as the inner portion of the plug nearest the pulp and arsenic pellet should remain unvarnished. The last step is to lightly compress the varnished surface of the plug toward the margins with wet cotton.

When there is no adjoining tooth, the same routine is followed, except that the wedging in packing is within the cavity, and the arsenic pellet may sometimes be placed before the packing is begun. All packing should be directed away from the exposed pulp, against the adjoining tooth, gums and walls of the cavity, which with the bridging effect of the last one or two pellets makes a large dome-like plug more or less hollow or unpacked in the region of the pulp, so that there will not be any pressure upon it. When the pulp is not exposed, the plug should be solid throughout.

See that the plug is not touched by the occluding teeth, and caution the patient as carefully as the combination of patient and cavity may require.

In this class of cavities, upon removal of the arsenical treatment, wash the cavity and gums thoroughly, and apply dialysed iron to the gums nearest the cavity, regardless of the form of stopping that may have been used.

If the gums cover the gingival margin but slightly, pack the cavity as directed above, placing the arsenic pellet on the side of the exposed pulp farthest from the gums.

When the pulp is not exposed, cover the entire floor of the cavity with well packed cotton, before placing the arsenic near the floor at the axial wall or at some higher position on the axial wall.

When considerable gum tissue occupies the floor of the cavity the packing will vary somewhat according to the position of the exposed pulp, whether to pack ignoring the gums if the exposure be high on the axial wall, or whether it will be necessary to raise the gumflap, packing so as to force the tissue out of the cavity, but in every case there must always be a substantial well packed layer of dry cotton between the gums and the arsenic pellet.

In cases where the gums are more or less in the cavity, use 4 per cent. tri chlor acetic acid, or adrenalin chloride 1-1000 to constrict the gum tissue, so that the cotton will not be perceptibly moistened when packed on it.

Since using this method the lance is very seldom used to remove hypertrophied gum tissue from cavities, and no case can be recalled where the arsenic was not applied at the first packing of the cavity, except when previous medication was necessary to relieve pain.

Dry cotton is sufficient to plug test tubes in pathological laboratories, and the success of the cotton sandarac method is due to the fact that no moisture is introduced into the cavity except on the arsenic pellet and that the varnished plug excludes the saliva, so that there is no vehicle to carry the arsenic to the gums, as dry cotton seems to be a perfect non conductor.

The instrumentation necessary to apply cement or guttapercha to the gingival margins of these cavities and avoid irritating the pulp, has undoubtedly caused sufficient moisture in many cases to account for the arsenical poisonings often attributed to the shrinkage or porosity of the stopping.

Summary.—The simplicity of the cotton sandarac method permits one to quickly and carefully apply it, thus reducing to the minimum any chances of the saliva entering the cavity while the treatment is being inserted.

Placing and retaining the arsenic in position is more certainly and easily accomplished.

There is very much less chance of irritating the pulp by pressure or from contact of stopping, than if cement or guttapercha is used.

As devitalizing the pulp is but a means to the desired end of permitting its removal, the cotton-sandarac method should appeal to one, because it is a great economizer of time and energy for both patient and operator, and permits the same end to be attained.

A STUDY OF THE BEST MEANS OF LOCAL ANESTHESIA FOR EXTRACTION OF TEETH.

By Dr. E. Sauvez, Paris, France.

(*Abstract of paper read at the Fourth International Dental Congress, St. Louis, 1904.*)

We should like to plead especially in favor of local anesthesia, in which we have absolute confidence, thoroughly persuaded that we speak in the interests of the patients and of the dentists and feeling assured that the operations will be thereby but the better executed.

General anesthetics act by inducing functional arrest in the nervous centers, according to an immutable, hierarchical sequence, in the first place, in the integument, then in the medular, reflex centers, and finally in the bulb; if anesthesia is still further developed, the bulbous centers become paralyzed and death ensues.

According to the *Edinburg Medical Journal,* of November, 1903, the ratio of mortality produced by general anesthesia is as follows:

Chlorure ethyl—1/16.000
Bromure—1/4.000
Ether—1/12.000
Choloroform—1/2.000
Photoxyde azote—Impossible of calculation.

However, 13 cases of death due to protoxyde are known (cases of Maurice Perrin, of Magitot, of Watson and of Duchesne.)

And we are dealing only with fatal cases. We do not mention the frequent and serious accidents, the blue syncopes from which the patients are only saved by artificial respiration. According to the witty expression of Professor Recus, "for an accident to count, it must be fatal."

We show in our memoir the difficulties of operation due to the inertia of the completely anesthetized patient and to the decubus dorsal, or reclining position, in which he is generally placed.

In case of fatal accident, when the matter is brought to court, the judges, who would never question the use of an anesthetic for a serious operation, will often bitterly contest its employment when it is used merely for the extraction of a tooth.

After citing all the substances abandoned as impracticable, for instance, tincture of cannabis indica, strong carbolic acid, orthoforme, etc., we lay stress on the use of electricity as an agent of local anesthesia.

Electricity has been employed in two ways:

A) A current of high frequence directed towards the level of a tooth during a variable period previous to extraction (Regner and Didsbury).

B) The introduction of medicinal substances (cocaine) within the tissues, by the aid of electricity. This is the cataphoresis based on the theory of Faraday's ions (Pont).

After expounding the operating manual of these means of local anesthesia, we develop its critique and show that electricity, as an agent of anesthesia, is not to be depended upon, presenting many inconveniences and difficulties.

We are thus forced to bring forward cocaine, or its derivatives, which, in injections, seem to give practical results superior to all other methods of local anesthesia known at present.

Practically, cocaine is a local anesthetic; from a physiological standpoint, it is a general as wel l as a local anesthetic. * * * Injected into animals in physiological doses, cocaine determines in them an extreme muscular excitation, followed by an insensibility exclusively of the surface, the deeper sensibility being preserved.

One of the most remarkable of the properties of cocaine is its vaso-constrictive action. We emphasize this fact and expose its divers consequences. Let us here only cite the elevation of the blood pressure. We dwell as well on its action on the centers of thermic regulation (cocaine heightens the temperature, Richet) and on the ocular apparatus (Mydriase).

We now approach the dangers which the use of cocaine might offer. In the first place, there is syncope. We show its rarity and explain how easy it is to avoid it by employing the right dose on the reclining patient. The other phenomena observed, sometimes subsequent even to correct injections of cocaine, are slight and insignificant—slight tingling (pins and needles) of the extremities and greater loquacity. There is really nothing in local anesthesia by cocaine approaching the sudden frights which accompany the use of chloroform. Statistics bear us out in this statement. In 7,000 cases of anesthesia by cocaine practised by Reclus, he has not noted the slightest trouble in the physiological equlibrium. We ourselves, with a minimum of 15,000 injections, cannot register one accident not even an incident, due to the use of cocaine. We are, therefore, in a position to affirm that this is the most inoffensive of all the anesthetics and that it exposes one to no surprise whatsoever.

With the aim of avoiding the so-called inconveniences attributed to cocaine, its derivatives or congeneric substances have been experimented with, which subject is treated at length in our thesis. We will here limit ourselves to citing the conclusions we arrived at concerning tropacocaine and eucaine.

Tropacocaine presents an equal degree of toxicity while its anesthetic action appears less profound than that of cocaine.

Eucaine is a vaso-dilator, its injection is painful and it presents a feebler power of anesthesia and of a shorter period of duration than cocaine.

Phenate of cocaine, insoluble in water, and employed, therefore, dissolved in oil or liquid vaseline, produces nodules which are long in disappearing.

Therefore the use of chlorhydrate of cocaine appears to us to carry with it all the advantages claimed for the preparations compared to it as much from the point of view of the anesthesia produced as by the percentage of possible accidents.

(The author reports experiments with various vehicles for carrying the cocaine, such as oil, vaseline, cocoa-butter, etc., and reports adversely.)

Because of the reasons we have given, it is water we choose as vehicle for chlorhydrate of cocaine. It remains to determine what title to give this solution. Cocaine being a toxic medicament, one should use as small a dose as possible, in spite of the fact of its being endowed with sufficient analgesic power. There is general agreement today to recognize a 1 part to a 100 solution as sufficient.

The toxicity of cocaine depends, not only on the weight of the quantity of the injected alkaloid, but also on the quantity of water in which it is in solution. The greater the quantity of water used, the more inoffensive it is for the same amount of cocaine.

For the extraction of a tooth, one cubic centimeter of a 1 part to a 100 solution—that is to say, one centigramme of cocaine quite suffices.

Schleich employs even a feebler solution: 0 gr. 002 and even 0 gramme 001. But in this case, the anesthetic is illusionary and due simply to the mechanical distension of the tissues: similar results can be obtained by a simple injection of distilled water.

Ordinarily for the extraction of a tooth we use one centigramme of cocaine. Under 12 years and above 60, we reduce the dose to no more than one-half centigramme. We have never had an accident and have yet always produced perfect anesthesia. In certain cases of complicated extractions, we inject as high as 2 and 3 centigrammes without accident, but conform, of course, to the precautions stated above.

We make use of fresh solutions, or extemporaneous solutions or of solutions preserved in sterilized ampoules.

We conclude that a cubic centimeter of a fresh and sterile solution of chlorhydrate of cocaine, one part to a hundred of distilled water, seems sufficient for practice in the majority of cases, and such a dose induces neither accident nor incident.

We lay stress on the precautions to be observed—the loosening of any clothes which might in any way impede respiration, a horizontal position, or, at any rate, one approaching the horizontal. There are contra-indications; as cocaine raises the blood pressure, it is contra-indicated for aortics and arteriosclerous patients.

Because of its depressive action, it ought also to be forbidden for anemic individuals and those debilitated, extreme nervous or averred neuropaths, and those worn out with debilitating diseases. Should the patient present a general state which would seem to visibly predispose him to syncope, it were better to abstain. These contra-indications are not absolute, they are but relative, and the more to be observed as the disease seems to arrive at a more serious degree.

As the gums offer quite a resistance to the injection, it is well to use a Pravaz syringe with a needle screwed on. Steel needles, by reason of their rigidity and the delicacy of their vent are preferable.

A great many of the accidents of infection attributed to cocaine are really due to aseptic faults. We keep our syringes in a carbolic solution (5 p. 100) with the piston drawn out, so as to keep the body of the pump and the piston-rod constantly in contact with the antiseptic liquid. The needles are to be boiled at least five minutes, or held in the flame.

The mouth should be rinsed with boracic acid and water, the gum washed with alcohol.

As the first puncture is liable to be somewhat painful, even with fine needles, we apply to the gum previously dried, a 10 p. 100 solution of cocaine, or else pulverized coryl.

After exposing the character of the tissues to be reached by the injection, we arrive at the following conclusions:

To insure the efficacy of the injection, it must be made at the level of the mucous membrane, which adheres closely to the periostium, and consequently not too near the neck.

The syringe, armed with the needle, is held like a pen and forced into the gum not deeply, within the derma, at a point situated about equidistant between the free edge of the gum and the presumed spot where the point of the root should be obliquely in reference to the median region of the maxillary. A sufficient resistance is felt when injecting and bit by bit the mucous membrane whitens under the influence of the cocaine.

One can be sure that the anesthesia will be excellent if the piston pushes hard. If the liquid enters without resistance, it shows that the injection has been made in the cellular tissue and the formation of an oedemous bulb will be determined. It were better then to withdraw the needle and begin again. Several injections are necessary, at least two, in order to surround the tooth with an anesthetized zone.

Adrenaline added to cocaine has given the best results, from the local as well as from the general point of view. (Batlin and de Nevreze.)

Stovaine is a substance recently discovered by a French chemist, M. Fourneau, which offers certain advantages over cocaine.

1. Weaker toxicity. From experiments on rabbits and guinea pigs which we describe in our paper, it is shown that this difference of toxicity between the two substances is very great—in fact, cocaine is shown to possess twice the toxicity of stovaine.

2. That this new medicament possesses a vaso-dilatative action, while cocaine's action is vaso-constrictive. Consequently with stovaine a patient may be operated upon, seated.

3. Finally, stovaine costs very much less than cocaine.

It is about two months ago since we began using stovaine—that is to say about the end of January, 1904, upon the advice of Professor Reclus. This surgeon has been employing it for several months in his service, and has obtained perfect results up to the present.

Personally, we have made a hundred injections of a 0.75 p. 100 solution of stovaine. We have observed no menace of syncope, no sickness ensues and we can affirm that the anesthesia produced is equal to that produced by cocaine.

1. Complete anesthesia, because of the dangers and inconveniences it entails, should be the exception in dental surgery. On this fact is based the importance of local anesthesia.

2. Of all the methods of local anesthesia actually known, cocaine seems to give the best practical results.

3. Chlorhydrate of cocaine appears to us superior to all the other preparations which compete with it.

4. Distilled water is the best vehicle proposed for the transmission of cocaine.

5. In general practice, a satisfactory anesthetic is obtained and all accident is avoided by the use of one cubic centimeter of a fresh solution, in distilled water, of chlorhydrate of cocaine at 1 p. 100.

6. When the injection exceeds one centigramme of cocaine, a horizontal position is called for.

7. In the extraction of a tooth, it is almost exclusively the rending of the alveolo-dental ligament that causes the pain.

8. The anesthesia is entirely dependent upon the manner of operating the injection. The after effects depend on the asepsis.

9. After the operation the patient should remain reclining one-quarter of an hour for one centigramme of cocaine; from two to three hours for a larger dose. —*Items of Interest.*

APPARENT TRIFLES.

As to the apparent trifles which affect the comfort of the patient, the careful man sees to it that the chair is adjusted to the comfort of his patient as well as to his own convenience. A few minutes carefully spent in this seemingly unimportant detail will pay large interest on the investment. The patient will almost invariably thank you to make an application of some cooling emollent to the lips if they are at all dry or have a tendency to crack.

The rubber dam, if applied before excavating, will save much valuable time, though there may be room for question as to whether the average patient would not prefer to have its application delayed until the last moment. When ready to apply it there is room to demonstrate your ability to do things carefully. It will pay almost always to make six holes through the rubber and surround that number of teeth. I think the average dentist should have the dam applied to his own teeth by some careless man at least once a week. He would then use care in applying it for others. Ordinarily there should be no pain and very little discomfort through its application. In the cold weather, if you will place the clamp in the forceps, and then hold the clamp over your Bunsen just long enough to warm it, your patient will bless you. If in carrying your ligature between the teeth you are careful not to let it strike the gum suddenly, your patient will appreciate it. If you are about to fill an ordinary cavity it is absolutely cruel to ligate several teeth, carrying the ligature up above the natural gum line.

When preparing a cavity it is not necessary to have it so dry that the tears will come down the patient's cheeks because of the pain caused by the dryness and low temperature of the room as compared with the body. A pledget of cotton dipped in carbolic acid and passed through the lamp flame, then to the cavity, will change the expression on the face as if by magic. If applied cold the patient will dread it as much as the pain you seek to control. If when applying the dam clamp you fold two little pieces of muslin and lay them between the clamp and cheek, your patient will appreciate it.

If you are filling a large sensitive cavity with amalgam it will lessen the discomfort greatly if you will warm your plugger or burnisher each time you use either of them. If it is a gold filling you have made you will find much less complaint from your patient during the finishing if your bur is run into a bit of beeswax and your disk against a piece of soap or coated with vaseline before use. A corundum point is much less annoying if coated with vaseline instead of water, and answers as well when used on metal.—*International.*

New York, Oct. 28, 1904.

Editor of American Journal of Dental Science, Madison Wis.

Dear Sir:—

Permit me to take exception to the first article in your issue of October, under the title "International Dental Congress." This article you have credited to "Items of Interest," which would naturally lead your readers to believe that the entire article had first appeared in our magazine. This is a view which I am quite unwilling should be maintained. You have written the introduction to the article yourself, and you have a paragraph therein which is absolutely contrary to the facts. This paragraph reads as follows: "Dr. Rodrigues Ottolengui of New York placed in nomination for the same office Dr. C. N. Johnson of Chicago, but the latter withdrew." Dr. C. N. Johnson never withdrew because his name never was placed in nomination. I am the more exasperated by this statement because in my report of the Congress I very carefully abstained from entering into the unfortunate circumstances which surrounded the selection of officers at the Congress. I did so in the interests of the good name of American dentistry but I have facts in my possession with proof thereof which if printed would fully refute the idea that Dr. Burkhart was elected over Dr. Johnson and if there is any further publication of this misstatement, which has now appeared in two magazines, I give notice that I will publish all that I know.

Yours truly,

R. Ottolengui.

BOOK REVIEWS.

Dental Metallurgy: A Manual for the use of Dental Students and Practitioners. By Charles J. Essig, M. D., D. D. S., and Augustus Koenig, B. S., M. D. Fifth Edition, revised and enlarged, 318 pages, with 76 engravings. Philadelphia and New York: Lea Bros & Co. 1904. Price $2.00 net.

Essig's Metallurgy has been before the profession for many years and has come to be accepted as the standard work upon the subject.

The late Dr. Essig recognized the need of a work of this kind and in the first edition compiled all the available data on the subject, together with the results of his own work, and Dr. Koenig in the present edition has added valuable material which brings it down to a level with the present state of advancement in this line. Secure a copy and study it.

Dunham's Normal Histology: A Text-Book of Normal Histology for the use of Students and Practitioners of Medicine. By Edward K. Dunham, Ph. B., M. D. Professor of General Pathology, Bacteriology, and Hygiene in the University and Bellevue Hospital Medical College, New York. New (3rd) edition, revised and enlarged. In one octavo volume of 334 pages, with 260 illustrations. Philadelphia and New York: Lea Bros & Co. 1904. Price $2.75 net.

The author states in his preface that the general plan and scope of this outline of histology are the result of experience in teaching the subjects to students of medicine under conditions which require economy of time. The book is divided into nineteen chapters and in their contents the student will find accurate and descriptive information on the microscopical anatomy of all the tissues of the body.

It is probable that the work has been boiled down a trifle more than is conducive to a ready understanding and this is clear when it is stated that the whole subject of the structure of the teeth is covered in less than two pages.

On the whole the book should prove of value to medical students and to dental students as well in connection with the subject of general histology and the practitioner of medicine can read it with profit. The makeup of the work is good—in harmony with the well known standards of the publishers.

The Doctor's Leisure Hour—Facts and Fancies of Interest to the Doctor and his Patient—Arranged By Porter, Davies, M. D., Volume 1 of The Doctor's Recreation Series, Charles Wells Moulton, General Editor. Pages 352, Illustrated, Silk Cloth, $2.50 The Saalfield Publishing Co, Akron, O.

The Doctor's Leisure Hour, contains a fund of interesting matter relating to the lighter side of the practice of medicine. It consists of stories, sketches, and poems covering the entire life of the doctor from student days until he becomes the "leading doctor of the town."

Anecdotes of famous doctors, poems on Madame La Docteur, sketches and jokes of the quack, etc., abound. The volume contains a great wealth of wit and humor but also has some serious matter. The selections are from the note-books of an active practitioner and are made under the supervision of the general editor. Among the contributors are Dr. S. Weir Mitchell, John Kendrick Bangs, Opie Read, Jerome K. Jerome, Alice Morse Earle, Rev. John Watson, Ruth McEnery Stuart, Mary E. Wilkins, MacKenzie Bell, Edwin L. Sabin.

The book is well printed on a good quality of paper and well bound in silk cloth with gilt top. The Doctor's Recreation Series will consist of twelve volumes, and will constitute an actual encyclopedia of purely literary medical literature.

TYREE'S ANTISEPTIC POWDER

CONTAINS

Sod. bor., alumen, ac. carbol., glycerin, the cryst. principles of thyme, eucalyptus, gaultheria and mentha.

For Ulcerated conditions of the mucous membrane, one or two teaspoonfuls to a pint of water three or four times a day. For Scrofulous, Syphilitic and Varicose Ulcers, apply the powder full strength or dilute with Boracic Acid. As an ointment, use from one to three drachms to one ounce of petroleum. For spraying the nose and throat, from twenty-five to one hundred grains to one pint of water (dissolves immediately). For *immediate* deodorizing and disinfecting, sprinkle the Powder direct upon the object affected; the results will be instantaneous. For Prickly Heat, Poison Oak, Squamous Eczema and other conditions of a similar nature, use from one to eight teaspoonfuls to a pint of water (has proven very serviceable for these conditions). As a deodorant and prophylactic in dental work, use one or two teaspoonfuls to a pint of water. For disinfecting offensive cavities, fill them with the Powder. For profuse and offensive perspiration, swelling, soreness and burning of the body and feet, use full strength or diluted with water. As a delightful toilet preparation after the bath and shaving, from one to two teaspoonfuls to a pint of water. The price is practically nothing. Ten cents worth will make one gallon of standard solution.

The regular semi-annual meeting of the Colorado State Board of Dental Examiners will be held in Denver, December 6th, 7th and 8th, 1904.

The examination will be both theoretical and practical and applicants for the examination must be prepared to do such practical work as is required.

All applications must be filed before December 6th.

M. S. Fraser, Sec'y,
407 Mack Block,.
Denver, Colo.

TYREE'S ANTISEPTIC POWDER.

Dr. C. F. Taylor, in the *Medical World.*

After an inspection of the process originated and employed by the manufacturer of this preparation, we do not wonder at its phenomenal success, and as an item of interest to the medical profession, we copy it in detail.

One hundred pounds of borax and one hundred pounds of alum are placed in a crucible of proper size and fused together with heat. The water of crystallization will be driven off, and the borax and alum will fuse together in a mass. When taken from the crucible it occurs in large lumps, which must be reduced to a powder by means of appropriate machinery. Then the powder is passed through sieves of graduated degrees of fineness, in order to get the desired fineness and a uniform degree of fineness. Then antiseptics and aromatics are added to the powder, the manipulations being done by appropriate machinery. When this is completed, we have "Tyree's Pulv. Antiseptic Comp.," or, for short, Tyree's Antiseptic Powder.

You see the impossibility of making this up as an extemporaneous prescription. You see, also, that to make it properly requires special apparatus, facilities, etc. Besides, it requires about five days to complete a "batch" of it. Even if your corner druggist was prepared to make it properly your patient could not wait five days to have the prescription filled. So the proper thing to do is to get it from headquarters, or have your druggist to carry it in stock, in order to fill your prescriptions.

Aluminum Lining For Rubber Plates.—A simple method is as follows: Take chloroform, three ounces; carbon disulphid, one ounce; powdered aluminum, one ounce. Before mixing the ingredients make a saturated solution of the chloroform and white vulcanite rubber. When the case is ready to pack, give the model a good coat of collodion, and follow this with about three or four coats of the aluminum preparation. I have used this for about six years, and have one plate under observation made in this way five years ago, and can see no change in it.—Dr. Burdette L. Conway, Dental Brief.

Chloropercha.—In making the solution, after you have applied the chloroform, stir up and add eucalyptol until you have it in a creamy state. Then leave the cork out of the bottle to allow the chloroform to evaporate. You then have a solution which, if forced through the apical foramen, will cause less irritation than would the chloroform.—Dr. C. S. Caesar, Review.

Treatment of Dry-Socket.—A patient for whom a third molar had been extracted by a specialist returned two days afterwards for consultation, complaining of extreme pain in the face, and of the teeth in both maxillae simulating irritation of a pulp. Careful examination excluded the teeth. When the alvelus from which the tooth had been removed was examined, it was found devoid of the normal coagulum, with the bone bare. A stiff dough-like paste, similar to a suppository, was made of orthoform, combined with oil of sesame and glycerin, with which the socket was filled. This means gave protection to the exposed tissue, as well as nearly immediate relief by the analgesic properties of the orthoform. —International.

A CAUSE OF PULP CONGESTION.

The subject of pulp-capping, like Banquo's ghost, will not down. The necessity for preserving this organ when exposed continually appeals to the progressive mind; and though failure after failure has been the history of this operation, with comparatively few exceptions, there are men who refused to be convinced that it cannot be successfully accomplished under favorable conditions.

So far as I am aware, the central thought has been to produce a substance to be placed in opposition to the pulp of such remedial and preservative character that this organ will continue its function in a healthy state, or else to so fix a concave disk of metal, the edges of which, resting on the dentin around the point of exposure, will protect it from actual contact with a foreign substance, thereby claiming to save it from destruction. So far as I know, a cause for hyperemia and death of all exposed pulps has been entirely overlooked, a condition that is not overcome or removed by any known method of capping. This cause is the irregular surface produced in the wall of dentin containing the pulp. This chamber is highly polished—lubricated to a greater or less degree by an exudate, which is indicative of nature's provision for protecting an easily irritated member. Hence, with an interruption of the continuity of this chamber, we find a condition that is directly the reverse of the smoothness originally provided. The edges of the break, even should they be smooth, will act as an irritant under the constant arterial pressure, and stasis in the pulp circulation must ensue. Just how far this might be retarded by a palliative covering I do not know, nor do I claim this broken wall to be the *only* cause for the almost constant death of exposed pulps; but I do claim that it is an ever present condition which will in the vast majority of cases *in itself* produce a congestion that necessarily leads to the death of this organ. I am of the opinion that all our efforts at conservation of exposed pulps should recognize this cause of irritation, for I am convinced that no degree of success will or can attend this operation unless the continuity of this chamber is restored and perfectly smooth and compatible surface be left against which the pulsating pulp can rest and remain in a physiological state.—*Dr. M. C. Marshall, Era.*

SETTING OF CEMENT.—In connection with the powder portion, there are two conditions which markedly influence the setting—viz., fineness of division and pigmenting. A finely divided powder gives more rapid chemical action, simply because of exposing more surface to the reagent, and pigmenting hastens or retards setting according as the pigment tends to form basic phosphate more or less rapidly It can be said that most oxides used for pigmenting have the tendency to retard setting, so that yellow, brown and gray powders can be depended on for slower setting than white.

To sum up, the setting of a oxphosphate can be hastened by the addition of water or diluted phosphoric acid to the liquid, or by reducing the powder to a more finely divided state. The setting can be retarded by abstracting water from the liquid, or by adding phosphate ("flux") to the liquid, or by pigmenting of the powder with oxides tending to form basic phosphate slowly.—*West. Jour.*

SEALING IN ARSENIC.—Prepare the cavity margins for permanent fillings. If gum hemorrhage ensue pack with cotton saturated with adrenalin chloride while preparing application and filling. When everything is ready remove cotton, syringe cavity with warm water, lay in a piece of asbestos felt, about large enough to cover the floor of the cavity; cover the cervical wall of the cavity with amalgam until the filling reaches beyond gum margin; press the asbestos felt away from the floor of the cavity, and place the application in position. Press back the asbestos felt over the application, and fill the balance of the cavity. When it is desirable to remove the nerve, drill down behind the filling, extending the cavity sufficiently to admit of direct access to the nerve canals, or, if sufficient enamel wall exists between the filling and the point directly over pulp chamber to warrant it, open through the fissures without any regard to the filling. This method protects the gum from action of arsenic, and simplifies the after-treatment.—*Domi. Jour.*

Unreliability of the Fixed Bridge.—More and more do I wish to emphasize the absolute unreliability of any fixed bridge of more than four teeth, and in some cases even four are too many. We must, therefore, look for some other method of attachment if we do not hark back at once to plate work. Our only hope is in the removable bridge. This is really a reversion to earlier practice, for when the discussion of bridge work pro and con was at the same phase that inlay work now stands, I was among those who doubted its qualifications as a fixture within the oral cavity and made only those that could be removed and cleansed. The first of these (and here I present one of them) was of rubber, with metal ring encircling a gold crown at the back and with clasp metal arms in front. Recently I saw two of these pieces in the same mouth that have been in use fourteen years in excellent condition and doing service. The fact that this method could be used only in the lower jaw somewhat limited its field of service.—*Review.*

Warping of Rubber.—When plaster of Paris is used for investment, warping of vulcanite in cooling is very apt to occur if rapid cooling is effected. The writer had a case where the plate split in the vulcanizer with a noise that could be distinctly heard. This was a "hurry job," the investment being used while quite new, and water was being poured on the vulcanizer to hasten cooling at the time the break occurred. The crack commenced at the posterior border and extended about an inch along the palate; one of the two wings thus made being so warped as to be almost at a rectangle with the other. This unmistakably demonstrated to me the liability of plates to warp from rapid cooling with a plaster-of-Paris investment. And yet a moderate amount of warpage might possibly produce a good fit. It is all a game of chance if Paris plaster is used for impression, model and investment.—*Brief.*

Vulcanization at Low Temperature: Its Advantages.—I think that the liability to disintegration or discoloration in pink, black, or red rubber may be somewhat obviated and that any kind will make a more perfect plate, if vulcanized for a long time at a low temperature, and I have found that pink rubber when treated in that way gives greater strength, durability and impenetrability. The practice of vulcanizing pink rubber or other rubber for the usual time of one hour at a temperature of 320 degrees is not a proper one; no less time than an hour and half at from 308 to 310 degrees, or far better still, three hours at 290 degrees, will give a much more satisfactory result. There is not a pink rubber upon the market but is increased in strength and durability just as the red rubber is, by vulcanizing a long time at a lower temperature. Pink rubber will absolutely not change one iota in color in ten, fifteen, or twenty years, if vulcanized three hours at a temperature of 280 degrees, running it up to 290 degrees, running it up to 290 degrees at the end of the third hour. I say that because I have proved it in my experience. It will not disintegrate and will not be penetrated by fluids of the mouth. So that you, who are wedded to the pink gums, if you treat your rubber in that way, will find that the color will be maintained, and the impenetrability will be just as good as that of the red rubber that you vulcanize now at 320 degrees for one hour.—*Western.*

It frequently appears that in an attempt to remove a perfectly healthy pulp after pressure anesthetizing and by the ordinary medium of entangling on a broach or nerve bristle, there may be observed a certain resilience of the tissue, so that it stretches like a rubber cord, springing back after breaking off. Here it is that trouble may supervene. I have noted in various instances more or less inflamation in the apical region following this stretching. In the case of one patient, a Yale College student, who came at the last hour to me, as his vacation drew to a close, a wholly unexpected complication set in after the removal of pulps under pressure in two bicuspids. The pulps were easily removed, leaving in this instance no occasion for returning sensitiveness. Yet both teeth troubled the patient during that night and despite the appearance of a favorable condition within the roots, no sensitiveness whatever appearing, I hesitated to fill, large contours being required, and in the end dismissed him to the care of a New York friend and fellow-practitioner.—*Era.*

DIAGNOSTIC SYMPTOMS.

The diagnostic symptoms of pericemental abscess are distinct and plain when once distinguished. In acute cases the first manifestation is pain; not severe, but continuous, and located by the patient in the offending tooth. Nervous apprehension on the part of the patient is, I believe, always incident to it. The trouble is liable to be confounded with periodontitis, but is readily distinguished from it. In acute pericemental abscess, there are no marked inflammatory symptoms in the alveolar and gum tissue; no swelling, no acute pain in response to tapping or pressure, no marked distinction between hot and cold applications, and no relief afforded by any local medication. The loosening of the tooth, slight in the beginning, becomes more and more marked as the case progresses. It will thus be noted that while this affection has been, and is, liable to be confounded with periodontitis, all the diagnostic symptoms (except the pain and the response to pressure) in the former, are exactly the opposite to those in the latter.

Chronic pericemental abscess is distinguished by absence of pain and all other active inflammatory symptoms. Occasionally, there is some hypertrophy of the gum tissue, but no marked swelling, neither soreness of the tooth on pressure. The tooth itself can generally be used in mastication without special discomfort. The escaping pus is discharged at the edge of the alveolus—between the alveolus and the gum. The point of egress may be distinguishd by a peculiar lip, or mouth-like opening, marked by a circumscribed turgescent condition of the gum tissue; a condition wholly unlike the fistulous opening of an alveolar abscess.

Soldering with Electricity.—The author had recently to repair a denture of gold through which an opposing molar had worn a hole. As one knows, ordinarily this would mean the removing of the teeth, as they were attached to the plate by vulcanite, involving a great deal of work and some elements of risk. I repaired this plate by attaching to it the negative wire of the lighting circuit, and to the positive wire a small carbon, cutting in, in series, a bowl of salt water as a rheostat. The hole in the plate was cleaned and prepared in the usual way, then covered with a piece of foil and 18-k solder placed on it, and borax for the flux. The carbon point was brought in contact with the solder and then gradually removed, forming the arc, which was held sufficiently long to melt the solder. The was closed thereby, and the rubber, hardly an eighth of an inch away, was uninjured; and by immediately immersing the plate in water it did not allow the heat to spread to the surrounding parts. While this case is one that is not common, yet it is well to know that repair of this kind can be made without going through the laborious operation of taking the bite, etc. The melting of any of the metals can be accomplished in the same manner even platinum scrap. I have soldered teeth in this way successfully, and know that by proper care soldering in many cases can be done with electricity.—*Extract. Era.*

Oil Stone for Sharpening Drills.—With the use of a piece of oilstone shaped like a pocket-knife blade (say three inches in length and with a sharp edge), it is a comparatively easy matter to bring in turn each blade of the drill to an edge, examining the drill frequently during the process under a magnifying glass. It is essential to good work that the stone edge be kept sharp. To accomplish this, obtain a piece of hardwood say three inches long and two inches in width, making sure that it is straight and perfectly level. Now take a strip of sheet lead two inches wider than the wood, but the same length or longer, so that it may be continued over each end;

tack it over the sides and ends (if necessary) to the wood, after having adjusted it evenly. Upon the surface thus formed sprinkle some No. 1 emery, and rub the stone lengthwise, without oiling or wetting the surface. To keep the stone in perfect condition this process should be continued after every dozen drills. As to the time required for sharpening the stone, three minutes usually suffices.

When utterly worn out the drills can still be made to render useful service by grinding them to a spear-point upon the lathe stone. In this shape they are very useful in alveolar abscess, where it is to be approached from the outside, through the alveolar process.—*Cosmos.*

RESTORING MOUTH INJURED BY AIR-CHAMBERS.—When the roof of the mouth had been ruined by having the tissues drawn down, Dr. Atkinson made a rubber plate to accurately fit the parts. The hypertrophied parts were painted with a saturated solution of salicylic acid in alcohol. That was done once daily for three or four days; then some plaster was put in the plate, and the plate put in the mouth. That was continued from time to time, the plaster cores being changed at each setting, increasing in thickness until the roof of the mouth was gradually reduced to its proper condition. I remember one case he showed me where he had reduced nearly half an inch of hypertrophied tissue by that means in the course of a few weeks.—*Items of Interest.*

NON-EXPANDING PLASTER.—The author reports the results of his experiments with plaster of Paris, begun in view of devising means by which to prevent, if possible, the expansion of plaster during the setting process. His test consisted mainly in the mixing of plaster with a saturated solution of calcium oxid in water previously filtered, boiled, and cooled; with lime-water prepared without filtering or boiling; with a solution of gum arabic; and with lime-water to which a little salt had been added. A test was also made with plain boiled water, allowed to cool. Through these various experiments the author found that plaster mixed with a saturated solution of calcium oxid in water filtered, boiled, and cooled does not expand. The gum arabic solution likewise prevents expansion, but the resulting plaster is less dense than when mixed with lime-water.—*International.*

USE OF MATRIX.—We have all tried and know what results are obtained where a matrix is used, so far as this relates to making gold fillings. If there is a place in dentistry where there are contraindicted it is in connection with use of gold. The matrix and amalgam go hand in hand together, and there let the matter rest. In the fewest possible words, matrices have absolutely no place, nor are they useful adjuncts to employ where we are dealing with gold.—*International.*

THE DENTAL SUCTION CO.

LOUDONVILLE, OHIO

Manufacture and sell the only absolutely sure and guaranteed suction worth using. Order a box today. Price $1.00 for six and save profanity.

Dental-Suction Co., Loudonville, O. Oneida, N. Y., December 21, 1903.
Enclosed find check for $2.00 for which send me two boxes Suction chambers. They are working fine. Well pleased. Yours, DR. CARLTON ALVIN SMITH.

Dental-Suction Co., Loudonville, O. Port Deposit, Maryland, December 24, 1903.
Gentlemen:—Please send me two boxes of the Perfection Flexible Suctions I have used them and find they are the best I have used for the purpose. I used them on a plate that nothing else would have retained the plate in place. Enclosed find $2.00. Address, DR. H. W. HOOPES.

Dental-Suction Co., Loudonville, O. Mt. Vernon, N. Y., March 7, 1904.
Gentlemen:—Received the Suctions; the same was used for a patient that has had six sets made in different places. Came discouraged to me, tried one of your Suctions, left the office, telephoned to me after two days, "Delighted!" Yours truly, DR. E. D. COSTALES.

All First Class Dealers Recommend These Specialties

Anti Glaze Strips (*reduced in price*) **30c per box — $3.50 per doz**

Disks in boxes of 100, 600 or 1500, asst., 10c, 50c and $1 25 per box.

Manufactured by the Wilson process, the latest and most improved process known.

Paragon New Departure Cement, per package of two colors, $1.50.

An excellent fine ground cement that gives excellent results in Crown and Bridge Work.

Paragon Re-enforced Chamois Disks—*are made heavier around the mandrel head and are less apt to break*—**per card of one dozen $1 00**

Do you have trouble with your crowns and bridges turning brassy when cooled in water? Try our ***ARDENTINE*** for cooling them—it will put a beautiful lustre on your work—in neat two ounce package ***$1.00.***

If your dealer does not have these goods in stock order direct.

PARAGON DENTAL MFG. CO.,

RACINE, WIS.

"It didn't hurt a bit!"

WHY?

His Dentist gave him

"Antikamnia & Codeine Tablets"

When to Use Them

FIRST

To ease the nagging and shooting pains while operating; to quiet the nerves, and prevent the headaches and nausea which frequently follow operations, administer one Antikamnia & Codeine Tablet every hour. Give one before beginning operation

SECOND

One Antikamnia & Codeine Tablet given before and another one after extracting a tooth, will stop pain and allay irritability

THIRD

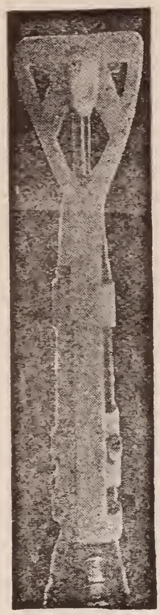
When a painful cavity exists, or a nerve or root is exposed, administer internally one or two Antikamnia & Codeine Tablets and fill the cavity with the powdered tablet, or apply it freely about the gums

FOURTH

For toothache, earache and facial neuralgia, administer one Antikamnia & Codeine Tablet every two hours until relieved

FOR SAMPLES AND LITERATURE, ADDRESS

The Antikamnia Chemical Company ✠ St. Louis, Mo., U. S. A.



DR. WILSON'S

Guard and Sponge Holder

A common sense device for use in grinding teeth. It is not only a disc shield but a moistener as well, using cotton roll, spunk or sponge. It will fit any handpiece and is not in the way of the fingers. Is very easily adjusted for large or small grindstones, also long or short mandrels and locks without set screws.

Price only 50 cents.

FOR SALE BY ALL DEALERS OR

DR. J. D. WILSON

DANVILLE - - ILLINOIS

Kester's Alloy is the result of twenty years' experimenting by Dr. P. J. Kester of Chicago. It has been used by prominent dentists for a number of years with so uniformly satisfactory results that it has now been placed on the general market.

It is the only alloy that is tempered and tested to zero. **It neither shrinks or expands.**

Perfect color — great strength — minimum amount of flow under stress — THE MOST PERFECT AMALGAM MADE.

Price: $2.00 per oz. -- 3 ozs. $5.00

For sale by dealers or

DR. P. J. KESTER,

A generous sample will be sent on request. **Masonic Temple, CHICAGO**

PUSTOLENE cures abscessed teeth at one sitting.

"Trade Mark Registered"

We guarantee Pustolene, if properly used, to cure an abscess or putrescent pulp at one sitting.

Pustolene has been thoroughly tested and is now used by more than 10,000 Dentists throughout the United States and Canada.

Pustolene is in paste form, always ready to use, and is composed of the most powerful germicides known; will not discolor the teeth and has a very pleasant odor.

Pustolene will, "if used as a pulp capper," relieve an aching pulp in a very few minutes and will return the pulp to its normal condition, there to remain permanently.

Pustolene has gained its reputation solely on its merits and has found its way to all parts of the Globe.

FREE—Upon request we will send free one sample and testimonials of Pustolene to any Dentist who has not had the pleasure of trying it.

For sale at all Dental Depots. Price $1.00–$1.25 in Canada and Foreign Countries.

If your dealer does not have it, order direct and send us his name.

PREPARED ONLY BY

J. A. SPRAGUE & CO., Columbus, Ohio.

THE

Webster Fountain Spittoon

PRICES

Complete, for Wall Bracket, or any Chair, excepting High Low Gould and Crown,

$40.00

When Stand, High Low Gould, or Crown Chair Arm is wanted, extra,

$5.00

The above cut does not do full justice to our new Fountain Spittoon.

We have in the manufacture of this Spittoon embodied some new and valuable features, notably among them, the automatic **valves,** which are so constructed as to work **positive** every time, cannot get out of order and do not have to be **repacked.** No **depression** in bottom of bowl for **dirt** to settle in. No **holes** in bottom to **leak** or **weaken** the bowl. Bowl can be taken out, if desired, in **one minute,** by simply loosening one screw. And lastly, the simple and **perfect** way it is constructed.

It is manufactured in our **own factory,** under our personal supervision, by the most **competent** workmen that can be had.

It is made in the best **lead** metal glass, in beautiful Dark, Green, Ruby Red, or Clear Glass, and it is guaranteed for one year.

Send for Descriptive Catalogue.

Manufactured by

THE WEBSTER DENTAL CO.

566 MAIN ST., - BUFFALO, NEW YORK.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA Dr. A. L. LAWRENCE TRADE MARK **AMALGAM.**

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,—2 oz. $5.50,—4 oz. $10,—10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by
AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.
FOR SALE AT THE DENTAL DEPOTS.

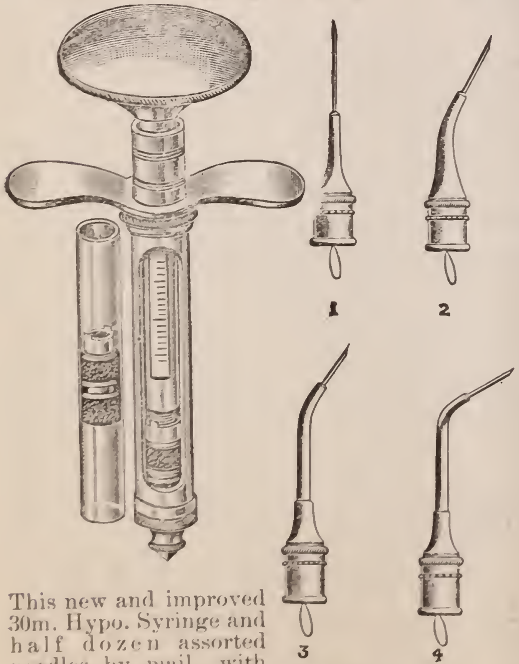
BURS : BURS : BURS : BURS

Sample order of two dozen for **$1.25.** First-class Burs—Stubs Steel, Machine Cut, Perfect Temper. Will give rates by gross or half gross with two-dozen order. Sample on request. Order to-day.

J. J. REED, Beloit, Wis.

BURS - BURS - BURS - BURS

NEW



This new and improved 30m. Hypo. Syringe and half dozen assorted needles by mail, with our complete catalogue for $1.00.

Physicians Supply Co.

Dept. A. Passaic, N. J.

The only Guaranteed non-breakable broach now used by the profession.

THE ACME

Our claim that the Acme is the finest and toughest nerve extractor has not yet been disputed Remember it is not a reamer, but does the work where the ordinary broach does not reach, viz., in a small or tortuous canal clinging to the side of the walls, and extracting the nerve without any danger of breaking the broach. We are so convinced that they will prove satisfactory that you can return them and have your money refunded. **GET THE ACME.** Price $1.00 per dozen or $9.00 per gross. For sale by all dental depots or the sole manufacturers.

We also manufacture the Rex—a broach similar to the one they charge $2.50 per doz. We will also guarantee this to be equal to it at $1.50. Simply give us a chance to show you on two kinds of nerve extractors—The Acme and Rex—and we are certain to have you for our regular customer.

We take Scrap Gold and Filings in exchange allowing highest market prices.

St Louis Refining Co.

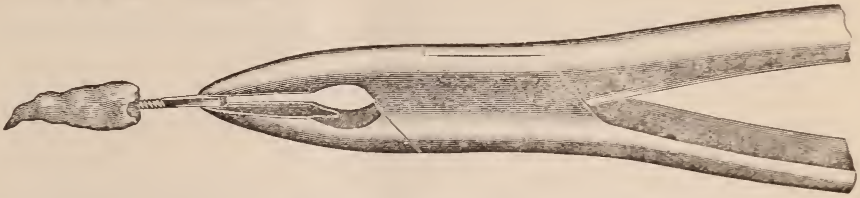
118 East 116 Street, New York

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary.*

Platinoid Crown Pins



Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

Is Your Plate Work
A BURDEN TO YOU?

IF SO——————

Mail us your impressions and wax bites, for we have achieved remarkable results in constructing mechanical work correctly. Doctor and you may as well derive the benefit of our experience. If you have ever hesitated to send out your laboratory work you need not in the future have any doubts as to its safety, for your work would receive the same amount of care and attention as it would if you had it in your own Laboratory. Try us and be convinced of our ability to do work as it ought to be done. Is your business a little dull? Let us boom it for you. Remember, that your prosthetic work is your representative, and talks to the people. Is it not satisfaction to see perfect results, and why, because we take pride in each and every case produced.

HERE ARE SOME OF OUR PRICES

all material furnished

GOLD CROWNS		***BRIDGE TEETH***	
Incisors	$1.50	Incisors	$1.25
Bicuspids	$1.75	Biscuspids	$2.00
Molars	$2.00	Molars	$2.25

RUBBER PLATES	
S. S. W. & Justii	$3.00
Consolidate Sibleys	$2.75
Frink & Young	$2.50
Pinless	$2.00

We return completed work the same day we receive it.

We furnish upon application strong mailing boxes in which your work can be shipped back and forth with all safety.

Write for our new wooden Mailing Boxes, 2 sizes, large enough to hold impression cup and bite for plate work and a smaller size for crown and bridge work.

DRS. CHRISTOPHER & GOLBECK

39 STATE STREET, CHICAGO

You Want the Best

Dr. Gilmore's
EXCEL LOCAL ANAESTHETIC

For absolute painless extraction. Safest and best. Thoroughly Antiseptic.

Price 2 oz. $1.50, 6 oz. $3.60, 10 oz $5.00

This Anaesthetic is acknowledged by every Dentist who has tried it to be superior to all others on the market.

ABCESQUE

A positive and permanent cure for all abscesses and a fine root canal filler

In $1.00 and $2.00 packages.

EXCEL GOLD STARTER

For starting gold fillings. Saves time, pain and strain on the eyes.

In $1.00 and $2.00 packages.

EXCEL DEVITALIZING PASTE

For painless devitalizing of nerves. It is painless.

Price $1.00

ANTI-STRANGLE

To prevent strangling when taking impressions. Insures a perfect impression and comfort.

Price $1.00

LOCALINE

Is a strictly local anaesthetic and applied to the gums on cotton.

Price 1 oz. $1.00, 4 bottles $3.00, 8 bottles $5.00

PULPINE

Successfully saves inflamed and aching pulps, stops hemorrhages and after pains like magic.

Price $1.00; Powder or Liquid, 50c each

OBTUNDINE

Successfully obtunds sensitive dentine at once.

Price $1.00

The greatest advertisement a dentist can have is to assure his patients ease and comfort in the dental chair; price is no object and they will go hundreds of miles to have them do their work.

The experience of thousands of dentists who are using our preparations is that they are the best they ever used for what they are made to do.

READ ☞ **As our goods stand on their merits we will send any one of our preparations in full size package to any dentist on receipt of 50 cts. to cover postage and packing or all of them on receipt of 50 cts. for each one sent for, or we will send them prepaid on approval for the price given; considering this a better method of advertising than sampling, knowing that it will make the dentist and his friends customers ever after.**

If your dealer does not keep them, send to us for them and send us his name.
We refer you to any dental depot in N. Y. State as to our integrity and fair dealing.

MANUFACTURED BY

EXCEL CHEMICAL COMPANY,

1559 BROADWAY, BROOKLYN, N. Y., U. S. A.

SOLD BY LEADING DENTAL DEPOTS

STYPTICIN

In Stubborn Local Bleeding.
A convenient, effective and
prompt **HEMOSTATIC.**

Marketed as Powder and 3-4 grain Dental Tablets.
Interesting reports will be mailed to Dentists on request.

Cocaine Hydrochlorate Merck

Large Crystals, Small Crystals (flakes), and Powder.

A product of the highest possible degree of ***Purity,*** answering the severest tests, yet costing no more than other Cocaine Hydrocholate.

The Merck Products can be obtained of all dealers.

Merck & Co.

NEW YORK **ST. LOUIS**

DeBow's Nerve Capping and Root Canal Filling

Used in Capping Live or Exposed Nerves

This nerve capping is one of the greatest boon for the dentist ever discovered. It enables the operator to handle with ease all cases of exposed or sensitive nerves. It is just what its name implies. a paste nerve capping to cover the nerve preparatory to filling. It does not kill the nerve but leaves it in a good healthy condition. Why kill nerves when you can cap them with better results. One bottle will cap about two hundred nerves. Try a bottle and you will have no further trouble with exposed nerves, or no more nerves to kill.

TESTIMONIAL.

I find the DeBow Nerve Capping will do all you claim for it. I consider it the finest thing in my cabinet and would not be without it. Yours respectfully,

F. R. DEMING, D.D.S., 207-8 Bamlet Bldg., Detroit, Mich.

Ask your dealer for it, or price by mail $1.00, large sized bottle.

DR. S. W. DEBOW, DENTIST
LINDENVILLE, O.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Cavity Cap Discs, and who also carry a general line of Dental Goods at popular prices.

Price of subscription. per annum, 50 cents; foreign countries, 75 cents.
Lowest advertising rates of any journal. Write for prices. Address,

THE TEAGUE SUPPLY CO.,
222 JACKSONST. AUGUSTA GA.

ADRIAN S. RUTHERFORD

Manufacturer of and Dealer in Dental Supplies

289 PLEASANT AVE., NEW YORK CITY

When at the Dental convention at St. Louis do not fail to see our exhibit. It will include a line of prophylactic instruments, scalers and trimmers, made from patterns furnished exclusively to Mr. Rutherford by some of the advanced workers using such instruments. Mr. Rutherford expects to give demonstrations for one hour each day on different methods of crown work, introducing the latest improvements made by himself and others. Free samples of our goods will be distributed.

Doctor, Have You Ever Tried Eclipse Alloy?

SINCE Eclipse Alloy has been on the market, we have had nothing but praise about its superior qualities. We can safely assert Eclipse Alloy has no superiors and few competitors. It sets quickly enough, so that filling can be finished in one sitting; it has great crushing strength, rarely breaking below 500 lbs. pressure it has an expansion of one ten thousandth part of an inch during early stages of setting, ***absolutely no shrinkage*** and retains a beautiful, silvery white color. We guarantee it perfect, as every batch of Eclipse Alloy is thoroughly tested before leaving our laboratory.

Your dealer can supply you. If not, send for ⅛ Ounce Free sample, and be convinced that you have at last found the Alloy that will give you perfect satisfaction. Price, $1.50 Per Ounce.

The Eclipse Dental Specialty Co.

7 and 9 Warren St., New York City, N. Y.

WM. HAHN

220 WASHINGTON STREET, CHICAGO

Manufacturer and Repairer of

Dental Instruments and Specialties

BROACHES

Barbed ½ doz. 50c. Progressive ½ doz. 75c.

The Old Reliable—all kinds and sizes. The best that skill and study can produce. Try the "Progressive" (Screw-Cut) for small and difficult canals.

Superior Dental Finishing Strips

Registered August 12, 1902, No. 9364

CARBORUNDUM—Made in three grits; Coarse, Medium, Fine, and in three widths: Broad, Medium, Narrow, or Assorted, as desired, seven inches long.

DIAMOND—Made in one grit only, and is for finishing and putting the final polish on the filling.

35 cts. per box of one gross or three boxes $1.00

A Free Sample for a postal card

Superior Dental Strip Co.

WATERLOO, N. Y.

Good Stationery

Is Good Advertising

BUSINESS AND SOCIAL
STATIONERY AND CARDS
WEDDING AND BUSINESS
INVITATIONS AND ANNOUNCEMENTS

Samples and Quotations willingly furnished

The American Embossing Co.,
10-16 LOCK ST., BUFFALO, N. Y.

"DAYTON BROACHES"
(INDESTRUCTIBLE)

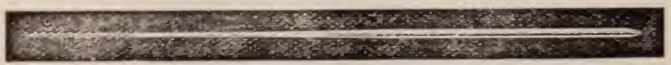
ARE THE BEST
THEY CANNOT BREAK

STRAIGHT

THEY ARE EFFICIENT

SPIRAL

DO YOU USE THEM?



TAPERED

Price, All Styles, All Sizes, $1.00 Per Doz.

DAYTON DENTAL SUPPLY COMPANY
S. W. Cor. 5th and Jefferson Sts., Dayton, O.

When a comparatively new material can SUPERSEDE the old standbys in the practice of EXPERIENCED DENTISTS, the argument resolves itself into a single word,

MERIT

This is exactly what RAMESITE CEMENT is doing.

The hundreds of dentists who have tried RAMESITE CEMENT, thus far, have duplicated and continue to duplicate their orders.

After you have tried all other cements

Try Ramesite

After all other cements have failed

Try Ramesite

If you have a piece of bridge work that persists in coming off

Try Ramesite

If you have a Logan or Richmond crown to set

Try Ramesite

If you have to fill a broken down molar—nothing but the walls of enamel left

Try Ramesite

If you have made a nice porcelain inlay and wish it to remain "A thing of beauty and a joy forever"

Try Ramesite

If you wish a durable filling

Try Ramesite

In filling children's teeth

Try Ramesite

In a wet cavity

Try Ramesite

If you are careless in the manipulation of your cement DON'T

Try Ramesite

RAMESITE is not a Careless Man's Cement.

Price per Package of Two Colors, $1.50. Write for Free Sample Package.

Manufactured . . . by H. G. KNAPP,

219 SIXTH STREET, - - - PITTSBURG, PA.

CHAUNCEY A. FLOWER'S
New Process Gold Cylinders

Is Guaranteed to be the best all-round Dental Gold in the world

Five reasons why YOU should give it a trial

FIRST—Because it is the purest Gold on the market.
Second—Because it is the easiest working Gold.
Third—Because it is perfectly adapted for any kind of filling.
Fourth—Because it requires NO ANNEALING.
Fifth—Because it requires no special kind of Instruments.

It is soft and cohesive, but when properly condensed contours perfectly, finishes hard and takes on the finest polish.

In fact is just what all good Dentists are looking for.

The best Quality and Easy Working combined.

PRICES--1-16th, $2.00; 1-8th, $4.00; 1-2 ounce, $15.00; one ounce, $30.00. Cash must accompany all orders.

C. A. FLOWER, 145 S. McKean Street, Kittanning, Pa.

Do You Sterilize

As much as you Want to?

As much as you Ought to?

Our Electric Sterilizer

IS

Convenient, Attractive, Durable Economical, Reasonable

Always at hand where your patient can see it

The Best Sterilizer Made

ADDRESS,

ELECTRIC STERILIZER CO.,
ST. PAUL, MINN.

Can Be Tied In a Knot

CAN NOT BREAK

"MILES"

BROACHES

75c. (Patented) $1.00

PATENTED

Price per set of Three, 50c.

The Miles Steel & Tool Co.,
Middletown, Ohio, U. S. A.

Dr. J. C. Graft's New Flexible Singerpore Disks

in Emery and Carborundum, are particularly useful for trimming natural teeth and roots for crown work, for grinding porcelain crowns, inlays, enlarging spaces between teeth, etc. These disks are very thin, rapid cutting, and flexible and both sides are alike.

Price per dozen, 50 cents

Terraplastica—A moulding compound—for taking impressions, casting metal dies, for rubber work—for investing gold work—absolutely has no superior.

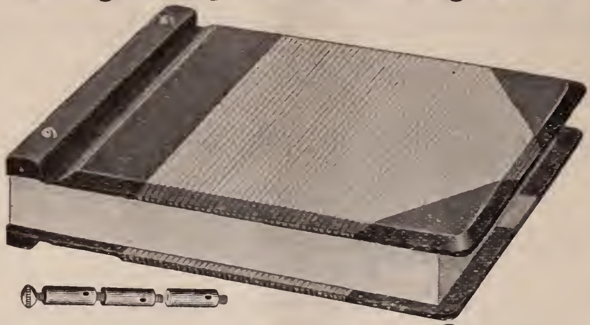
Other Specialties—Perfect Impresion Varnish—Superior Base Plate—Improved Dental Plaster—Bridge Repairing Pliers—are essential adjuncts to every den laboratory. Send for ourBooklet.

TERRAPLASTICA MFG. CO.
5 W. PARK ST., NEWARK, N. J.

Dentist's Ledger Outfits

Prices in reach of all. Equipment Practical
Designed by Business Engineers

Holds from one sheet to two thousand and in perfect alignment. Do the others you have seen?



Victor End-Lock Loose-Leaf Sectional Post Binder.

Leaves always carried in stock in standard form. Any forms prepared on short notice

This is not the only labor-saving device we have to offer you, but if you will write us telling us the condition you are working in and under we will outline a system for you and submit it with prices. No charge for it unless it suits and then only for the supplies.

PRICES OF STOCK OUTFIT
1½ bound canvas binder
1 A to Z Index ....
300 Stock Leaves......
$7.50

WRITE US FOR PARTICULARS

H. C. Miller Company
Business Engineers, Consulting Accountants,
Manufacturing Stationers
2-6 Broadway, Milwaukee

H. C. MILLER & CO.,
Milwaukee, Wis.

Please send sample sheets of Dentist's Ledger and see my letter for inquiries.

SOZODONT

Liquid,
Powder,
Paste.

Alkaline,
Astringent,
Antiseptic.

SOZODONT possesses the three characteristics which are generally conceded to be essential to a perfect dentifrice and mouth-wash. Its use among Dentists, not only as a **Pleasant Deodorant and Wash,** but also as a remedial agent as well, is steadily increasing. Its **Alkaline** reaction—**a feature of prime importance** from a Dentist's standpoint, though possessed by few of the many washes on the market—is pronounced, though slight. As an astringent, its effect is mild, but marked. The antiseptic feature has recently received much attention, and is now as near perfection as the efforts of experienced chemists can attain.

We wish every Dentist to **be familiar with SOZODONT.**

SAMPLES FOR TRIAL

will be sent to any Dentist, together with Professor Hill's and Professor Norton's Analyses of SOZODONT, "SOZODONT in the Dental Office" and litmus for testing. We invite correspondence.

ESTABLISHED 1848.

HALL & RUCKEL,
NEW YORK CITY.

THIRD SERIES VOLUME XXXV THE OLDEST DENTAL MAGAZINE IN THE WORLD DECEMBER 1904 NUMBER 12

MARKED C

THE AMERICAN JOURNAL OF DENTAL SCIENCE

ESTABLISHED IN 1839

AN INDEPENDENT DENTAL MAGAZINE PUBLISHED BY DENTISTS FOR DENTISTS.

PUBLISHED MONTHLY BY WM. GIRD BEECROFT, D.D.S. MADISON, WIS. U.S.A.

MARKED COPY.

When You are Ready

to subscribe for the dental magazines you wish to take next year, drop us a line stating those you will want and we will be glad to quote you our rates on them.

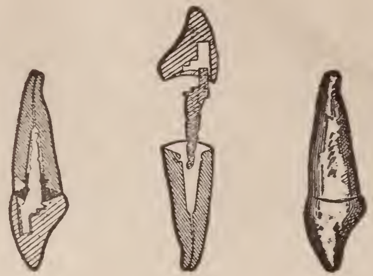
We shall be pleased to answer all letters of inquiry.

If you subscribe now, the remaining issues of this year will be sent you free.

WM. GIRD BEECROFT, D. D. S.
MADISON, WISCONSIN

The Whiteside Crown

(Patented March 17, 1903, February 9, 1904)



A PERFECT TOOTH CROWN

Strongest, - Easiest to Adapt,
Widest Range of Adaptability

Ever see a **Lower Bicuspid** porcelain crown, fashioned after the shape of Natural lower bicuspids, ready to mount without grinding to death?

The **Whiteside Crowns** include an assortment of these among a full line of Incisors, Cuspids, and Bicuspids, of natural shapes and life-like translucency and shadings.

The bases of all Whiteside Crowns are so shaped that grinding is reduced to the minimum.

Booklet--A Treatise on Crown and Bridge Work--sent free on application.

The Whiteside Dental Man'f'g Co.
(INCORPORATED)
DENTAL SPECIALTIES. YOUNGSTOWN, OHIO, U. S. A.

MORE CASH FOR OLD GOLD

We Will Give You More in Cash

for your Gold and Platinum scraps and filings than you can get for it in trade.

We have been smelting and refining for twenty-two years, do a very large business and have the most improved and economical facilities for handling Old Gold, Platinum, bench sweeps, etc.

You Take No Risk

We send draft on receipt of every shipment, small or large, and hold same in its exact condition until we hear whether the amount is up to your expectations; if not, we return it, express prepaid. Could any proposition be fairer?

We are sure that if you send one shipment you will send them often.

You can also send us the accumulation of rubbish around your work-bench if you think it contains any gold, and we will give you its value in cash after deducting our small refining charges.

TWO LARGE REFINERIES

WENDELL & CO.

93-95-97 William St., NEW YORK
57 Washington St., CHICAGO

HARVARD UNIVERSITY.

DENTAL SCHOOL,

BOSTON, MASSACHUSETTS.

Thirty-fifth year begins September 24, 1903.
Send for announcement.

DR. EUGENE H. SMITH, Dean,
283 Dartmouth Street,
Boston, Mass

BALTIMORE COLLEGE OF DENTAL SURGERY,

The oldest dental college in the world.

The Sixty-Fourth Annual session will commence October 1, 1903. For catalog and particulars address

M. W. FOSTER, M. D., D. D. S., Dean.
9 W. Franklin St.

UNIVERSITY OF PENNSYLVANIA

DEPARTMENT OF DENTISTRY.

Offers unequalled facilities for the acquirement of a thorough professional education in dentistry. Catalogues and circulars of special information furnished upon application to

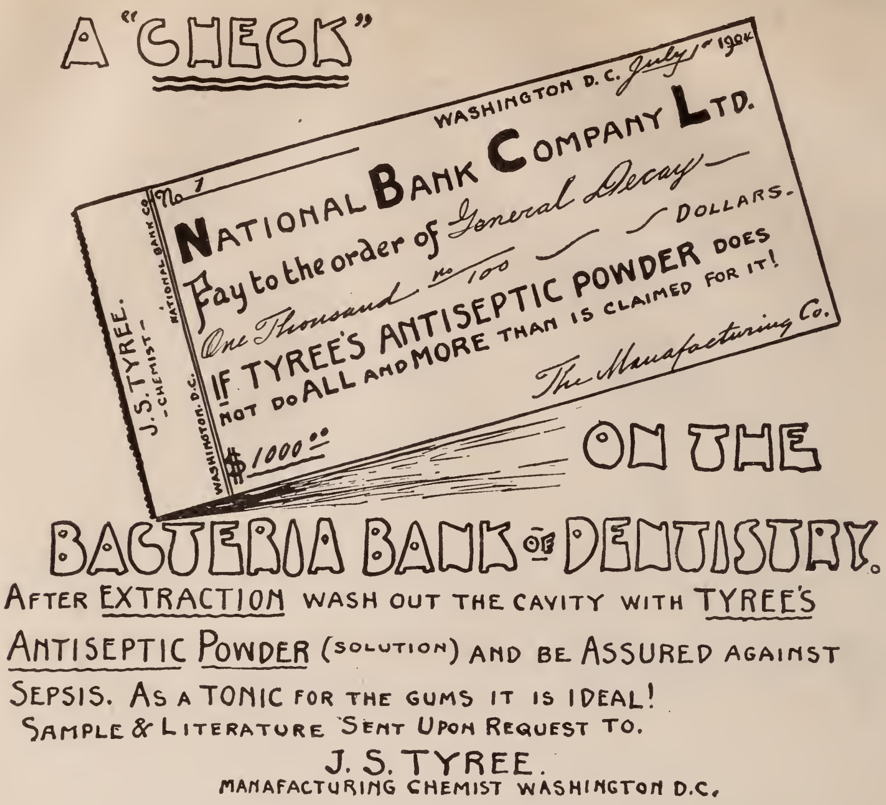
EDWARD C. KIRK, DEAN,
Dental Hall, Cor. 33rd and Locust S

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

PHILADELPHIA, PA.

Forty-Eighth Annual Session opens October, 1903. Three year's graded course in Lectures, Quizzes and Clinics. Women admitted.
For informstion address

WILBER F. LITCH, M. D., D. D. S., Dean,
1507 Walnut St.



A "CHECK"

No 1
NATIONAL BANK COMPANY LTD.
WASHINGTON D.C. July 1st 1904
Pay to the order of General Decay —
One Thousand no/100 — — DOLLARS.
IF TYREE'S ANTISEPTIC POWDER DOES NOT DO ALL AND MORE THAN IS CLAIMED FOR IT!
The Manufacturing Co.
$1000.00
J. S. TYREE. -CHEMIST-
NATIONAL BANK CO. WASHINGTON, D.C.

ON THE

BACTERIA BANK OF DENTISTRY.

AFTER EXTRACTION WASH OUT THE CAVITY WITH TYREE'S ANTISEPTIC POWDER (SOLUTION) AND BE ASSURED AGAINST SEPSIS. AS A TONIC FOR THE GUMS IT IS IDEAL!

SAMPLE & LITERATURE SENT UPON REQUEST TO.

J. S. TYREE.
MANAFACTURING CHEMIST WASHINGTON D.C.

TABLE OF CONTENTS.

December, 1904.

PAGE

Opening Lecture, Baltimore College of Dental Surgery, Session 1904–5—B. Holly Smith 217

Pericemental Abscess—D. D. Smith 223

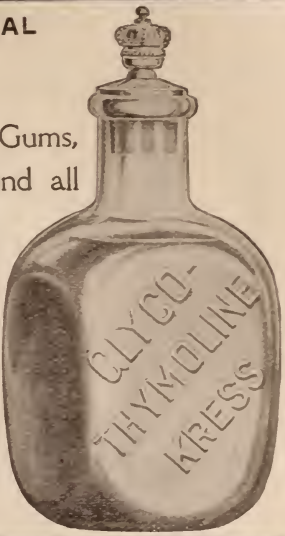
The Future of Dentistry—M. R. Harned 228

The Value of Dental Legislation—Dr. Anema........ 232

Book Reviews 233

GLYCO-THYMOLINE

IS INDICATED WHEREVER THE ORAL SECRETIONS ARE FOUND TO BE ACID.



In Pyorrhea, Alveolar Abscess, Spongy Gums, Chronic Ulceration, Abscessed Antrum, and all Abnormal conditions of the mouth the **Alkaline Antiseptic** treatment cannot be too strongly advocated.

SPECIAL OFFER.—This Sprinkle Top Bracket Bottle, together with samples for your patients, will be sent free to any dentist mentioning this journal.

Kress & Owen Company,
210 FULTON STREET. NEW YORK CITY.

THE ALKALINE ANTISEPTIC

"THE IDEAL ADJUVANT"

DENTACURA

A Tube of DENTACURA, costing the patient 25 cents, contains in a concentrated form, more effective *antiseptic, astringent and medicinal properties*, than a bottle of any antiseptic mouth wash (costing three times as much). At the same time DENTACURA possesses all the requirements of an ideal dentifrice, cleansing and beautifying the teeth as nothing else will do.

Every conscientious dental surgeon owes it to himself, to his patient, and to his profession, to honestly test DENTACURA in his practice.

SAMPLES AND LITERATURE FREE

ADDRESS,

Dentacura Company,
NEWARK, N. J., U. S. A.

The Best Antiseptic for a Dentist's Prescription

LISTERINE

A true prophylactic

Listerine exercises an inhibitory action upon the acid-forming bacteria of the mouth, and thus maintains the alkaline condition so necessary for the welfare of the teeth.

"THE DENTIST'S PATIENT". An interesting little brochure on the care of the teeth, will be forwarded upon request, together with a new pamphlet of 32 quarto pages embodying:

"LISTERINE UNDER THE MICROSCOPE". A tabulated exhibit of the action of Listerine upon inert laboratory compounds.

"COMPARATIVE VALUE OF CERTAIN ANTISEPTICS". An interesting showing of the comparative value and availability of various antiseptics in the treatment of diseases of the oral cavity.

"EXPERIMENTAL RESEARCHES". A report by members of the Association of Analytical Chemists of the Pasteur Institute, Paris, concerning the antiseptic action of Listerine.

LAMBERT PHARMACAL CO.

SAINT LOUIS, U. S. A.

Be assured of genuine Listerine by purchasing an original package.

THE AMERICAN
JOURNAL OF DENTAL SCIENCE
ESTABLISHED IN 1839

THE OLDEST DENTAL MAGAZINE IN THE WORLD
INDEPENDENT--------PUBLISHED BY DENTISTS FOR DENTISTS

VOLUME XXXV
NUMBER 12
THIRD SERIES
DEC.
1904

EDITOR:
WM. GIRD BEECROFT, D. D. S., Madison, Wis.
ASSOCIATE EDITORS:
ALBERT H. KETCHAM, D. D. S., Denver, Colo
EMORY A. BRYANT, D. D. S., Washington. D. C.
GEO. S MARTIN, D. D. S., L. D. S Toronto Junction, Ontario.

Published on the 10th day of each month.
Subscription Price, $1.00 per year.
Foreign Countries, $1.50 per year.
Address all communications, both business and editorial to the editor
Entered as Second Class Matter, Madison, Wis.

OPENING LECTURE, BALTIMORE COLLEGE OF DENTAL SURGERY, SESSION 1904-5.

B. HOLLY SMITH, M. D., D. D. S. Baltimore, Md.

Gentlemen:—I bring to you the cordial greetings of the faculty. We welcome you of the senior and junior classes as old friends. Some of you have journeyed far in your vacations. All, we hope, are here with renewed strength and spirit for the work of another college year. How fortunate it is that even when the task is difficult, a little rest and change bring us to its undertaking with an earnest determination for its accomplishment. Then, too, it should be pleasant to feel a comradeship and sympathy in the work; we are here to undertake it together,—teachers, students, all for it and at it with a will.

To the freshmen I bring a most friendly welcome. You, as strangers, we especially wish to make feel at home, to introduce you to the work in such a way that it may seem attractive; to encourage your every hope and ambition for earnest and fruitful work. Some of the training will no doubt be strange and confusing. Be patient and don't expect to do too much at once, though lose no time in taking hold of any threads within your grasp.

As it is the custom of those in authority on fete days and festive occasions to give gifts and announce promotions, I present from the faculty to the sophomore class promotion to the junior class, and that there may be no invidious distinction, the juniors are promoted to the senior class and may hope for graduation this year. Now this is a wonderful exhibition of generosity on the part of the faculty, and it is hoped that it will be appreciated, as it is the first time in the history of the school that such wholesale advancement has been granted.

You are all here to make the best of your opportunities in the study of Dentistry, and most, we must assume, look upon the effort as something to bring occupation, livelihood and position in the world. The accidents which influence the selection of a vocation are too many for us to assume that you all come charged with an adequate knowledge of what the profession of Dentistry really is. If you have rightly chosen your profession, however, it cannot fail to be of interest to you to glance back at its history and at those changes that have taken place in the methods and in the preparation for it as a calling.

With the time allotted me tonight it is

manifestly impossible to go into its ancient history. The ingenuity and resourcefulness of man in all ages has been exhibited, in some effort to assist nature mechanically, that is, to furnish some artificial substitute for the losses resulting from disease and accident; but as far as recorded, these efforts have been desultory and not based on any scientific record or mechanical training, since neither tradition, records or mummified or fossilized remains of early ages, show any similarity or concerted procedure.

Hippocrates, about four hundred years before the Christian era, is about the first whose writings show any appreciation or recognition of diseases of the mouth and teeth, and their relation to diseases in general. In 1716 we have a record of a dentist, Laudemiey of Paris, being called upon to perform an operation on the mouth of Philip V of Spain, and in 1723 he announced himself dental surgeon to his catholic majesty, King Philip V of Spain. In 1728 Fouchard published two volumes denominated "The First Attempt to Systematize and Treat Methodically the Dental Art." Many others attained eminece in France, among them Jourdain was so highly esteemed by the medical men that they frequently had him in consultation. Later in England, Hunter published a treatise on dentistry to be followed afterwards by Fox and Blake.

During the Revolutionary War there came to this country one Le Maire, a Frenchman, who was the first among us to show superior skill in dental art; he not only did some acceptable work but gave training to others. Among other importations we had Gardette from France, Wilfingdale from England, Edward Hudson of Dublin. Mr. Greenwood was about this time perhaps the most eminent native dentist, conspicuous for his distinguished service to George Washington.

These individual practitioners, standing aloof from each other often bitterly jealous and unfriendly, gave little promise of any help in the development of professional dentistry.

There are three significant factors in the growth of what we now recognize as professional dentistry: first, the organization of this, the first dental college; second, the publication of the first dental journal; third, the organization of the first dental society. The schools, of course, were essential to train men not only as specialists in the diseases of the mouth and jaws, but to give them that skill in the use of tools and materials utterly unknown to the general practitioner of medicine; the dental journal to publish to the world the researches and accomplishments of the profession, as well as to acquaint each member with what was being done by the others; while the dental society brought the profession in touch one with another, and besides an improvement in materials and methods, made possible that esprit de corps, or professional ethics which has lifted us above the sordid methods of the commercial classes. These have all contributed to make dentistry what it is today, and lacking any of them its growth would have been less rapid.

Before the inception of these enterprises, dentistry was a cult or calling with many able practitioners, it is true, but practically without exponents. Demonstrations were rare, methods of practice were secret; materials and their individual manipulation were guarded carefully from all rivals. The dental laboratory was a locked room and could only be entered by the apprentice after an iron-clad oath never to reveal its secrets. Indeed, surgery itself was discredited, and in many countries, "saw-bones" as much a term of reproach as "tooth-carpenter."

Strange to say the dental college, journal and semi-national society were in great part, the work of two men who were at that time Baltimoreans,—Chapin A. Harris and Horace M. Hayden. These men were hard workers, great students and soon to be prolific dental authors and translators of works on medicine and kindred subjects. Harris was a man of powerful physique, great pertinacity of purpose, and I have often been told by those associated with him, he had greater capacity for work than any man they had ever known. So it seems to have been with the pioneers of all ages, the task is set, the courage and capacity given. Harris had great personal dignity associated with no little vanity and-self-confidence. He recognized his own qualities as a leader and was not a little jealous of his reputation as such. His extreme sensitiveness to criticism involved him in many contentions, some of which assumed great bitterness.

Hayden was a much older man. The fires of his youth had burned out in the many enterprises of his early life. He had been a sailor, traveler, geologist, mineralogist, dentist, doctor of medicine and prolific author.

An item in the book review of the *New York Times* of recent date, states that as much as $500 has lately been offered for a single treatise of his on geology. He was unquestionably a man of broader culture and greater learning than Harris, but his advanced years and more retiring disposition had to succumb to the virile domination of the latter, and in the early history of their association, Harris was the master.

The medical associates with these men, Bond and Baxley, were experienced lecturers and authors; men of force and power in their profession and community.

It is not strange then, so well manned was this new faculty, that support and endorsement came from many quarters. There was little money, however, and poor equipment. Part of the work of the department of anatomy was conducted in a stable-loft. For the first year, I have been told, the instruction was "mostly wind," very few practical demonstrations or clinical operations were performed. This was corrected soon, however, and from those days to these,—with perhaps the exception of the period during the Civil War,—the history of the B. C. D. S. has been one of uninterrupted effort and successful achievement.

It is interesting to note the various changes that have taken place in the conditions upon which the dental diploma has been awarded. The first sessions of the early dental schools were of about four months' duration. For the beginners, two of these short sessions were demanded, but there were many men in dental practice whose proficiency was recognized and either an honorary degree granted, or they were graduated after an examination. The sessions were subsequently extended to five months and a credit of one term granted to those who had been in practice five years. This was often abused and by a stretch of imagination, collecting dental bills, doing chores about a dental office, or sitting about watching a vulcanizer, was taken in lieu of a genuine practice of dentistry.

This condition prevailed until the late dean of this school, Dr. R. B. Winder, a man of superior judgment and ability, conceived the necessity of uniting all the colleges into one organization, so that legislation might be enacted, raising the standard of dental teaching and requirements. He called a conference of deans of Philadelphia and New York schools, and out of this developed the National Association of Dental Faculties, which association has since controlled the standards of entrance and teaching requirements. The five years' practice as equivalent to one session at college, was quickly abolished; the bestowal of honorary degrees met the same fate, and six months' session substituted for five. Later on the session was lengthened to seven months, and a three year course took the place of the two year, until finally in the fervor for extending the course, four years was named. It was found, however, that so many considered this impractical and unnecessary, that the Association has rescinded this requirement and returned to three years of seven months.

Preliminary requirements were unknown in the early days of the profession, but have persistently increased of late until by the next session, or perhaps the one following, students will be compelled to have a high school education, at least, before beginning the study of dentistry.

The methods of teaching have greatly improved. Technical instruction and demonstration increased, subjects added to the curriculum. Thus rapidly dental training has increased in efficiency; now what must be the effect upon the product, the dental graduate? He will not find himself in competition with unprepared men, and he will not succeed if he himself is unprepared.

The American Journal of Dental Science was the first dental journal published, and was the outgrowth of a plan to bring the honorable practitioners of dentistry together, liberalize their views of practice, as well as afford a means of publishing the proceedings of the Dental Society and the lectures and addresses of the professors of the B. C. D. S.

Its publication was begun in 1839 and was accomplished by a board of editors,—Eleazer Parmly, Elisha Baker and Solyman Brown. Subsequently Chapin A. Harris and Solyman Brown were its editors. The first volume was published by the private enterprise of these men; afterward, until 1850, the journal was published under the auspices of the American Society of Dental Surgeons, and the subscription price raised from $3.00 to $5.00.

Many books on dental subjects which had been published before were here republished, necessary translations being made by professors of the B. C. D. S. Contributions were invited and published from dentists at home and abroad. Its pages are interesting reading yet, and evidence literary style and a learning that will compare favorably with any publication of its day. This journal has had almost a continuous publication until the present time, though it has changed hands several times.

Many other journals were added to this one, such as "The News Letter" (now out of publication), "Dental Cosmos," "Dental Digest," "Dental Review," "Dental Luminary," "International Dental Journal" and numerous others.

These journals, most of them exceptionally well published and edited, are, with the exception of the International Dental Journal,* published by supply houses. This is a source of great regret and mortification to many practitioners of dentistry. They believe the journals should be in the hands of the dental societies, and consequently entirely free from any connection with dental dealers. The difficulty has always been the expense. Illustrations are expensive. The "International" has had a hard fight, as there are so many competitors in the field, and is not yet free from debt. It cannot be denied that this association with commercialism has been more or less profitably employed in most dental publications. So tactful, so liberal, so yielding has the management been, that objections have grown to be regarded as mere sentiment. No scientific journals have given greater evidence of merit (from the publishers' standpoint), illustrations have been abundant, editing capable; and yet in some quarters there is a feeling that it would be more dignified to have the profession represented by some such independent publications as the "American Medical Association," or "American Medicine."

It seems to me fit opportunity to suggest to you young men that this is an auspicious moment to start some such organ here in our midst, the "Journal of the B. C. D. S. and Its Alumni." You might start it as a quarterly. The bright things you might write would be gladly received by the graduates, as well as matriculates of the school. Then, too, you would serve to establish a system of communication between your fellows of long ago and your alma mater.

As early as 1817, Dr. Hayden proposed the formation of a national dental society, and visits were made to Philadelphia, New York and Boston to further this purpose, and yet it was not until 1840 that some fifteen or twenty men met in New York to organize the "American Society of Dental Surgeons." Dr. Hayden was elected the first president; Dr. Harris, secretary.

Three years later, this association numbering one hundred and twenty-five members, met in Baltimore, and Dr. Harris in his address said, "In all great movements, either in religion, politics, science or benevolence, the American character and the popular genius of all our institutions immediately direct us to lay hold of the great principle of voluntary association, as an agent of stronger moral power than any known in the country, to effect any desirable good. We have no wealthy and powerful privileged orders to command any given amelioration or improvement, and hence we combine the power of popular number and bring it to bear upon the objects we desire to accomplish. This national peculiarity accounts for the numerous benevolent and scientific associations found in the United States, before the moral power of which vice, ignorance, empiricism, bigotry, oppression, and long-established habits and modes of thinking are fleeing away like mists of morning before the rising sun. This will furnish the reason why America can boast of the first society of Dental Surgeons ever associated together in the world; and if this association shall produce results in any manner comparable to those produced by other American associations, now the wonder and praise of the world, the character of an American dental surgeon will stand as high on the archives of science as do the names of Washington, Franklin, Hancock, Henry and Jefferson on the roll of freedom, or Mills, Judson, Perkins and Hill in the annals of American missionary benevolence."

---

*The American Journal of Dental Science already referred to in this paper, is also an independent dental magazine, being owned, edited and published by members of the dental profession.—Editor.

Now, while the oratory of the paragraph just quoted may be a little too fervid to suit the modern idea of reserve in public speech yet it may serve to bring back to us the florid style of a by-gone time, and give us some idea of the reverence in which the man held his calling, and the energy he put into his work for its uplift.

The society before which he made this address demanded unqualified evidence of moral character as well as practical ability. Its fees were of two kinds: ten dollars for members of acknowledged standing and ability in the profession and twenty-five dollars for beginners who underwent an examination preliminary to their admission. It had a continuous and useful life of sixteen years, when it was finally dissolved through bitterness engendered by contentions about the use of amalgam. Many prominent members held that the use of this now indispensable material was equivalent to malpractice.

The American Society of Dental Surgeons was succeeded by the American Dental Convention, a body without constitution or by-laws, a simple, open meeting or conference.

This organization was of short duration, and was itself succeeded by the American Dental Association, which held its first meeting at Niagara Falls, 1859. This was from the first a delegate body and had a successful and continuous existence until merged with the Southern Dental Association, into what we now proudly recognize as the National Association.

For over twenty years it had been considered desirable by many to have all sections of the country involved in one central organization. The Southern Dental Association had grown into almost equal importance with the American. Effort after effort had been made to unite the two, but the most that had been accomplished was to confer. Antagonisms partly engendered by the Civil War might be held responsible, though many Southern men were members of the American.

Finally I, as president of the Southern Dental Association, at a meeting held at Old Point Comfort, recommended in the annual address that committees of the two associations be appointed to consider this most desirable object. Dr. Thomas Fillebrown of Boston, a prominent member of the American and others were enthusiastic in support of the idea. Thanks to the ripeness of the time and more thanks to the persistent and untiring efforts of the many loyal advocates of this cause, the union of the two associations was accomplished. Dr. Fillebrown has never received half the credit he is entitled to. Both committees worked hard on matters of detail, but his efforts were unceasing. With the hearty co-operation of all of us who were friendly to this cause, success was finally achieved and the National Dental Association held its first meeting at Old Point Comfort in 1895, with Dr. Fillebrown as its first president.

The consummation of these efforts secured to America for the first time one authoritative body whose decisions upon any scientific subject, matter of practice, or question of policy, are accepted the world over: as witness the question of the formation of the Fourth International Congress. The National Association appointed a committee of organization for the Congress. The Federation Dentaire Internationale, an association with seventeen nations represented in membership, also appointed a committee. Much dispute and contention arose as to authority.

but it was decided that the National Association through its committee should organize the Congress, and it resulted in the largest and most successful congress in the history of dentistry.

We have not time here to take up the history of any of the many prominent local societies, but they are doing good work; and right here I will say that when you are graduated, your loyalty to your profession and your fidelity to the teachings of your alma mater, demand that you lose no time in associating yourselves with one of these bodies; and your ambition should not stop short of being a delegate to the National. Your association with dental societies will prove a post-graduate course of study, which will more than repay you for any expense or sacrifice you make; and we, as your teachers, will feel proud that you have not fallen into that selfish oblivion which has engulfed so many, and which shows such small appreciation of your advantages.

Our parental relation will not allow us to close this address without a personal word directed especially to the stranger who is within our gates; but to you all I bring the admonitions which you may find appropriate.

This is the beginning of a life that is to be different from the old life at home. It should be to all of you a pleasant and happy prelude to the mature years of responsibility and professional labor which await you. I counsel you to make the most of your opportunities in your college life. First, fritter not the days away in idleness, guard well your conduct toward your fellow, lose no chance to make and keep a friend. Be not unmindful of what is expected of you from home. Do not neglect any opportunity which the school offers for your advancement in your studies. Live sane and wholesome lives. Do these things, and the memory of your college days will bless you throughout the remainder of your life.

This is a happy time to begin the study of dentistry. At no time in the history of the world has there existed such a wide field of usefulness for the dentists nor such a keen appreciation awaited his successful practice. Only a short time ago the dentist, in common with the general surgeon, had little of the respect and honor freely accorded the general practitioner of medicine. Today these distinctions are forgotten in a general appreciation of his helpfulness and culture. When your labors shall happily culminate in the bestowal upon you by our worthy dean of a scroll bearing your name and ours, you will hear him say that he gives it "with all its rights and privileges and subject to all its responsibilities." If then this is a propitious time to begin to prepare for the practice of dentistry, it is also a time when more, much more, is expected of you. To guard against any unworthy entrance to your profession, more time is spent in your training, rigid examinations to test your fitness are given by your college, and finally after you have graduated, a Dental Examining Board will have to pass upon your fitness before you will be allowed to practice.

To prepare for these tests, the beginning must be made now, not next month or next week, but tonight the resolution must be made. There is no royal road to success in this nor any other department of life, but may be attained only by what Dr. Osler calls the "secret of life as I have seen the game played." Some years ago he said to a body of students,—"I propose to give you the master word of success. Though a little one, it looms large in meaning. It is the open sesame to every portal, the great equalizer in the world, the true philosopher's stone which transmutes all the base metal of humanity into gold. The stupid man among you it will make bright, the bright man brilliant and the brilliant man steady. With the magic word in your heart all things are possible, and without it all study is vanity and vexation. To the youth it brings hope, to the middle-aged confidence, to the aged repose. It is directly responsible for all the advances in medicine during the past 25 centuries. * * * Not only has it been the touchstone of progress, but it is the measure of success in every-day life.

"And the master-word is WORK—a little one, as I have said, but fraught with momentous sequences if you can but write it upon the tables of your heart and bind it upon your forehead."

PERICEMENTAL ABSCESS.

By D. D. Smith, D. D. S., M. D.
Philadelphia, Pa.

Read before the Philadelphia County Medical Society, Sept. 23, 1904.

The affection here denominated pericemental abscess was first noticed by the author about 1890, and first described by him in a paper read at the Tri-union Meeting of the Virginia State, Maryland State and District of Columbia Dental Societies, held Old Point Comfort, Va., May, 1897. Prior to this all abscesses associated with the teeth and alveolus were styled alveolar abscess; the only exception to this being the occasional use of the meaningless term "blind abscess."

It was not until quite a number of these peculiar tumoric growths found on the roots of teeth—especially between the roots of molars—had been observed and noted that their distinguishing characteristics were made a subject of special interrogation and study.

ATTENTION FIRST ARRESTED.

While treating the putrescent root-canals of a superior left bicuspid in the year 1890, two hitherto unobserved diagnostic conditions came prominently into notice. It was evident that the tooth was associated with an abscess, yet the most persistent efforts to relieve it by treatment through the root, were wholly without results; at the same time the previously cleansed and disinfected canals of the tooth remained entirely devoid of infection. Repeated dressings and medication during a period of three weeks failed to develop any odor or to make any impression whatever for the better. At the end of four weeks the tooth was extracted, when the cause of the trouble and the negative results in treatment, became apparent. Lodged in an irregular depression of the root, formed by a slight sharp bend, about one-quarter of an inch from the apex, was a glandular, fibrous tumor of the size of an ordinary pea, covered with globules of pus. The base of this tumor, or abscess, was relatively large and strongly attached to the pericemental membrane. It was entirely independent of the pulp and canals, having no communication with them whatever either at the basal attachment or at the apex. I remember well, that in reciting this feature of the case at the meeting referred to, several who took part in the discussion refused to believe that such conditions could exist.

THE DAWNING OF RECOGNITION.

In the dawning of my observation of these pathological conditions, the recognition of them was so confused and imperfect—for in the beginning only chronic cases were apprehended—that it required several years to differentiate them from the ordinary alveolar abscess.

THE REVELATIONS OF AN ACUTE CASE.

The observation and conduct of an *acute* case in the Spring of 1895, developed the missing diagnostic links, opened the way to a more perfect understanding of the etiology of the trouble, and suggested the nosology we have adopted.

This case is of peculiar interest, and is here cited in the hope that it may serve to fix the special pathognomonic features of the disorder. It was in connection with a second left upper molar, a tooth of typical formation, in the mouth of a young M. D.—a mouth marked, because of virulent infection on all surfaces of the teeth.

BEGINNING OF AN ACUTE CASE.

The patient presented rather hesitatingly, complaining of an uneasy sensation only, which he hardly classed as pain, but which he located without hesitation in the offending tooth. Examination disclosed no diagnostic symptoms except a very slight loosening of the tooth and a barely distinguishable response to tapping and pressure. There being no evidence of periosteal irritation, and the pulp being alive, I was disposed to regard the complaint as having origin more in the imagination than in a real pathological state. Following an application of tincture of iodine to the gum over the affected tooth, the case was dismissed with the suggestion that the pain was probably due to some unusual or misdirected pressure in biting.

The next day the patient returned, with the local symptoms equally obscure; there was little evidence of inflammation, no swelling, no decided pain on pressure. The most prominent feature of the case at this stage was the feeling of apprehension, the decided conviction of the patient that there was something wrong with that particular tooth.

The case was a regular daily visitant for about eight days. During the first five days no strongly marked diagnostic features developed, but it excited interest, and not a little anxiety. The treatment consisted of external applications only, the quieting effect of which seemed to be most evanescent. Neither heat nor cold applied directly to the tooth and gums gave rise to any unusual sensations of pain or relief. There was no appreciable swelling, no marked periostitis or other evidence of the inflammation save the pain; this had become continuous, and was definitely located *in the tooth*.

On the fifth day a diagnosis of acute pericemental abscess was made. The tooth had become more loose and perhaps more painful: it responded more acutely to tapping and pressure, but the pulp was deemed to be alive. To asure myself that it was not implicated in the trouble, I decided upon devitalization.

(IN PARENTHESIS.)

And here parenthetically I desire to put on record a protest against much that has been written in disparagement of arsenic for the devitalization of pulps, and present the one proper method for using this valuable agent.

ARSENIC AS A DEVITALIZER.

Although wholly contrary to accepted teachings and practice, the *arsenical paste* —white arsenic, morphia acetas aa, creosote q. s.— should *never* be placed in contact with pulp tissue; this application should always be made to intervening vital dentin.

The cavity in the tooth in which the application is to be made should be so shaped and arranged that the arsenic shall be securely confined in contact with vital, sensitive dentin only. There should be no possibility of its escape to other mouth tissues, either through the confining filling or around the margins of the cavity. If the cavity of decay cannot be made to securely confine the arsenic—and very frequently it cannot—or if it is desired to destroy the pulp in a sound tooth, a special cavity or large drill-pit should always be made *in another part* of the tooth, one in which the arsenic can be perfectly confined. The application may be made in a cavity remote from the pulp with perfect assurance, provided it is secured there in contact with sensitive dentin: (temporary gutta-percha stopping is the best confining medium).

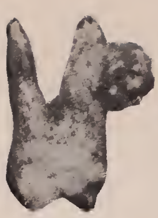
WHY PAIN AND SYSTEMIC SYMPTOMS RESULT FROM THE USE OF ARSENIC AS A DEVITALIZER.

It is placing the arsenic upon living pulp tissue that induces the pain, and it is the escaping of the arsenic from the cavity to the pericementum and gums, through or around the confining filling, that has been and is, the cause of all supervening troubles—gum inflammations, alveolar absorption and necrosis—which result from the use of this agent.

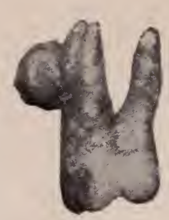
Manipulation in accordance with the method suggested will insure painless and perfect devitalization in any tooth in from twenty-four to seventy-two hours, and that with no possible systemic injury, neither inflammatory manifestations in any contiguous tissues.

THE NARRATIVE RESUMED.

Drilling through a small crown filling into the dentin, the tooth-bone was found in an exalted state of sensibility. Assured of my diagnosis, I determined, if possible to reach the seat of the abscess and evacuate the pus in the hope of effecting a cure. An arsenical application was accordingly made to the dentin, which so perfectly destroyed the pulp that its removal was effected within thirty-six hours. This operation produced no disturbance, neither was there any incident following it. The removal of the pulp and dressing of the roots had no appreciable influence on the abscess symptoms; the soreness of the tooth, the continuous (not throbbing) pain, and

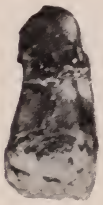


No. 1.



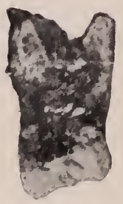
No. 2.

Two views of original specimen forwarded to me in Autumn of 1897, by a practitioner in Connecticut; unable to recall his name. Histological report made by Dr. Robt. Formad, Med. Dept. U. Pa. See Kirk.—"Abscess upon Teeth with Living Pulps,"—*Cosmos.* August, 1898. Cuts made by *Cosmos* press, 1897. Used by Dr. Kirk only, to illustrate two papers: the first mentioned above; the second, "Pericemental Abscess," before N. Y. State Society, May, 1900. The latter paper ascribes the discovery to Dr. Darby, and the making of the photograph to Dr. Cryer: see *Cosmos,* Nov., 1900, page 1149.



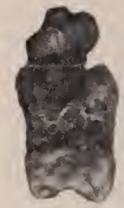
No. 3.

Right sup. 3rd molar; extracted July 4th, 1904. The occasion of serious head trouble.



No. 4.

Left sup. 2d molar; extracted July 21st, 1904. The occasion of serious double-antrum infection.



No. 5.

Right sup. 3rd molar; extracted April 26th, 1904. The occasion of malaise and nervous depression.

the mental disturbance—a feeling of apprehension—continued unabated. I next drilled entirely through the crown, reaching the alveolus at the point which extends down between the roots. This operation was very disappointing in that it failed to evacuate any pus or to develop any odor. The third day after the opening was made upon the alveolus, there appeared unmistakable signs of infection in the left antrum. Unwilling to risk further treatment, the offending molar was extracted, when the cause of all this trouble became apparent. Just above the opening which had been made with the drill, and closely adherent to the inner side of the distal buccal root, was the peculiar but well-developed lobular sac of the abscess, with small globules of pus disseminated over its surface. The night following the removal of the tooth there was a copious discharge from the antrum through the left nostril. An opening was at once made through the alveolus into the antrum and treatment instituted through it. The antral cavity was syringed twice daily with phenol sodique, diluted about one-half with water, and at the end of two weeks the case was discharged entirely well.

WHY THIS CASE POSSESSES GENERAL INTEREST.

This acute case should possess general interest for the profession, not alone because it presents the distinguishing peculiarities and diagnostic symptoms of this affection, but more because it discloses the serious nature of the malady and points to some of its usual but unrecognized complications.

A COMMON AND SERIOUS MALADY.

It is manifest that the pathological condition we are discussing is not only far more common than has hitherto been suspected, but that the infection resulting from it is the occasion of many grave systemic diseases as yet unsuspected. It is a condition which may be readily diagnosed when in a state of activity, but when chronic and apparently inert, it may be difficult of recognition. In the guise of innocent inactivity it gives rise to perpetual infection, and frequently arouses most serious systemic maladies, conditions far more to be dreaded than its most aggravated local expressions.

MANY CASES TREATED.

During the ten years which have followed the treatment of the case cited I have seen and treated a goodly number of these abscesses, both acute and chronic, but never with encouragement or pronounced success. One of the former occurred in my own mouth in connection with a maltreated, split molar, which eventuated in an obstinate double antral infection. Another—chronic—illustrated in this article, No. 3, was the occasion of a grave head trouble—a burning pain under the scalp, attended with exhaustion and despondency. These conditions were immediately relieved through extracting the tooth. No. 4 was the cause of the development of a severe double antrum infection. No. 5 was the occasion of a marked condition of malaise, attended with mental depression and hallucinations. In the two latter cases, extraction of the offending teeth afforded immediate and pronounced relief; the antrum trouble still under treatment is progressing favorably and the malaise and mental depression eventuated in complete systemic restoration.

In but two instances, where pericemental abscess has been surely diagnosed, has there been any prolonged effort to retain and preserve the tooth. In these cases—both teeth superior molars—the abscesses have extensive basal attachment, which supplants and occupies the territory on the inner surface of the roots at their junction with the crown. These abscesses are quiescent, and have no perceptible pus discharge; while the teeth are somewhat loose, they are in use in mastication, and occasion no complaint. In both instances the teeth were experimentally retained: there is absolutely no hope of bettering their condition by treatment, either through surgical removal or lymphatic absorption.

CONFIRMATORY TESTIMONY FROM DR. FORMAD.

The histological researches of the late Dr. Formad, of the Medical Department of the University of Pennsylvania, as revealed in a private letter under date January 20th, 1898, fully confirm the status ascribed this pathological condition as a new discovery; they also stamp its nosology as correct, and reveal why it may, and does, occur indiscriminately on teeth with and without vital pulps. Caused as it is by an irritant on the outer surface of the pericemental membrane, it is wholly unaffected by any known method of treatment, either through the root, by external applications, or by surgical interference.

TEETH SPECIALLY LIABLE TO PERICEMENTAL ABSCESS.

Any tooth having a pericemental membrane, and a conformation to accumulate infection, may be the subject of pericemental abscess. Molars with large, bell-shaped crowns and constricted necks, because of their shape and location in the mouth, are more especially liable to it.

WHAT IT RESULTS FROM.

The conditions preceding its development are neither systemic inclination through "aberrant nutrition," nor a circulation floating a so-called gouty poison. It is not a result of infection from putrescent pulp tissue, nor from the prolific gaseous emanations resulting from nitrogenous decomposition within the tooth. Infection from such sources finds expression on the *inner* surface of the pericementum about the apical foramen, and eventuates in the ordinary alveolar abscess. The nucleus of this inflammation, and the resultant tumoric abscess, is in touch with some stagnant, septic irritant upon the tooth, the external surface of the pericemental membrane alone being involved.

PUS DISCHARGE SMALL.

The amount of pus disengaged from these abscesses is relatively small. It is not confined within a sac or limiting membrane, as is generally the case with an ordinary alveolar abscess, but it is sparingly distributed over the irregular surface and within the folds of the tumor-like body which forms the abscess.

HOW A PERICEMENTAL ABSCESS DISCHARGES.

The pus from a pericemental abscess never forces an outlet through the alveolus and gums in the form of a fistulous opening, neither does it come into the pulp canals through the apical foramen. It escapes at the edge of the alveolus, at the free margins of the gums—commonly between root bifurcations—or it may be found oozing around one particular root of a molar; frequently it is the palatine root of a superior molar or the distal root of a lower molar. Turgidity of the gum tissue at the point of egress marks the exact location of the abscess. No pus whatever can be obtained from a pericemental abscess in its earlier or acute stage. Even in chronic states the discharge is seldom profuse. In a goodly number of cases where the abscess had assumed a hopelessly chronic form, I have found pus in large quantities and very offensive, in a few instances in connection with lower bicuspids, but more frequently around lower molars. The incessant inflammatory action induced by this abscess not only increases its own substance, but it loosens the tooth, and through necrotic absorption forms, enlarges and deepens cavities and pits in the alveolus which become cesspools of pus prolific in infection.

The nerve centers, from my observation, are the special points attacked by the pyemic toxins from this abscess. Depression of spirits, loss of appetite, enfeebled digestion, malaise, headache, tonsular and pharyngeal inflammations, are the direct outcome. They also become the exciting cause of many far more serious troubles, both acute and chronic; among these we have found neurasthenic, gastric, gastrointestinal, rheumatic and renal complications, including diabetes and albuminuria. From all these maladies we have not only afforded relief but effected cures by relieving septic mouth conditions, complicated with pericemental abscess.

POTENCY OF MOUTH CONDITIONS ORIGINATING SYSTEMIC INFECTION JUST IN THE DAWNING OF RECOGNITION, BY MEDICINE AND DENTISTRY.

Since the publication of the article on "*Systemic Infection Due to Natural Teeth*

Conditions," in January, 1903, there have appeared two papers of marked significance by medical men: one by Dr. Robert T. Morris, of New York City, entitled, *"Infections of the Lymph-glands of the Mouth and Throat,"* and the other, *"Buccal Antisepsis,"* by Dr. E. Dunogier, Bordeaux, France. The former makes this significant and commendable remark: "We are finding at my clinic very many more infections proceeding from the teeth than are found in some other clinics," and then goes on to say, "One class of infections, very dangerous ones, have been frequently overlooked by dentists; these are infections following the removal of abscessed teeth. Patients die and the cases are not reported; they come in to be treated for pneumonia. There are patients dying this minute in this city from the result of having abscessed teeth extracted while in course of acute infection."

Dr. Dunogier speaks of "dangerous systemic results accompanying purulent conditions about the oral cavity," and recites the case of a "young man aged twenty-one, a sufferer from albuminuria for over six years," who was cured through, what seems to me, very indifferent attention to the teeth and mouth conditions, which had previously been wholly neglected. To prove positively "whether the mouth-infection had been directly concerned in the causation of albuminuria, the patient was directed to abandon temporarily all dental care. This was followed five days afterward by the reappearance of the albumin, and thus the original diagnosis was definitely established." Another case of a diabetic, is noted by Dr. Dunogier with similar treatment and like favorable results.

When the day shall dawn when medicine and dentistry shall fully recognize the human mouth as the field of most prolific and dangerous infection—the human mouth—and truly differentiate its pathologic conditons, the prevention of disease, the relief of suffering and the lengthening of the average of human life, will be accelerated a hundred fold.

If it is true, as Dr. Morris says, that in dentistry and surgery "we find whatever we are looking for," how important that we keep our eyes fixed on actual conditions. Actual conditions do not reveal that the extraction of a tooth with an ordinary alveolar abscess was ever the precursor of pneumonia. Pericemental abscess, with its pyogenic infection and enfeebling results, has undoubtedly been a predisposing factor in many cases of pneumonia. How important that medicine and dentistry distinguish between the two conditions!

Mouth conditions would appear very different to both professions if they could be viewed in the light in which they really exist. We do not need the hypothetical conditions of "thrombi" and "embolic infection," said to be induced by equally hypothetical "crushing of cancellous bone structure in tooth extraction," for the induction of systemic infection. Infection is found as a natural exudate along the whole linear gum margin about the teeth; it is found upon the twenty to thirty square inches of tooth surface in every mouth, between and under the teeth, and in crypts and pockets about roots. It is found in nasal passages, upon the tongue, on tonsils and pharynx. There is infection in the breath, in salivary and mucus sediment, in decaying food remains and in mouth debris of every kind. Add to these *normal* infectious states, the many serious pathological mouth conditions—decay in the teeth, putrescent pulp tissues, the retrograde metamorphosis of devitalized teeth, alveolar abscess, alveolar pyorrhea, and more than all the infection we are considering, pericemental abscess,—and we have a combination of infection in the human mouth which should startle the community, and rouse to highest intensity the interest of medicine and dentistry alike.

The question may arise, is pericemental abscess a state of pyorrhea? My answer is emphatically in the negative. Pericemental abscess and alveolar pyorrhea are often associated in the same mouth, and they may have similar origin, but they are separate and distinct affections. Pericemental abscess develops from a point of irritation on the external surface of the pericementum, usually some inaccessible depression in which the infection lodges and is confined. It is generally found between the roots of double or multi-rooted teeth, or it may be found at the end of a tooth having fused roots. Alveolar pyorrhea is more commonly found in connectio with single rooted teeth; when associated with molars, the infection is between, rarely, if ever, under them.

Pericemental abscess is a characteristic tumoric growth, generally between the roots of teeth: alveolar pyorrhea is an inflammation beginning in the pericementum at the free margin of the gums; in its progress it destroys cemental and alveolar tissue, uncovers portions of the roots of teeth, develops pus, and imparts a characteristic odor to the breath. This inflammation leaves in its train not degenerate, sero-fibrous *growths*, but broken-down tissue remains, calcic sedimentary matter, and other debris which destroys permanently all vital relations between the uncovered portions of the affected roots and the alveolus.

Pericemental abscess, virulently infectious, is incurable, except through loss of the tooth.

Alveolar pyorrhea, often equally infectious, is before the necrotic wasting of the alveolus wholly amenable to rational surgical treatment.

DIAGNOSTIC SYMPTOMS.

The diagnostic symptoms of pericemental abscess are distinct and plain when once distinguished. In acute cases the first manifestation is pain; not severe, but continuous, and located by the patient in the offending tooth. Nervous apprehension on the part of the patient is, I believe, always incident to it. The trouble is liable to be confounded with periodontitis, but is readily distinguished from it. In acute pericemental abscess, there are no marked inflammatory symptoms in the alveolar and gum tissue; no swelling, no acute pain in response to tapping or pressure, no marked distinction between hot and cold applications, and no relief afforded by any local medication. The loosening of the tooth, slight in the beginning, becomes more and more marked as the case progresses. It will thus be noted that while this affection has been, and is, liable to be confounded with periodontitis, all the diagnostic symptoms (except the pain and the response to pressure) in the former, are exactly the opposite to those in the latter.

Chronic pericemental abscess is distinguished by absence of pain and all other active inflammatory symptoms. Occasionally, there is some hypertrophy of the gum tissue, but no marked swelling, neither soreness of the tooth on pressure. The tooth itself can generally be used in mastication without special discomfort. The escaping pus is discharged at the edge of the alveolus—between the aveolus and the gum. The point of egress may be distinguished by a peculiar lip, or mouth-like opening, marked by a circumscribed turgescent condition of the gum tissue; a condition wholly unlike the fistulous opening of a alveolar abscess.

THE FUTURE OF DENTISTRY.

M. R. Harned, D. D. S., Rockford Ill.

A treatise upon such a subject as the one chosen by the essayist, must necessarily be speculative; dealing in futures is always somewhat hazardous and especially where there are so many elements to modify the complex question of personality with which we have to deal.

My hope is to follow along lines natural and fundamental hoping our topsy-turvy civilization with its complexities will not entirely divert us from the course, if the course suggested be really best as well as ideal.

E. H. Griggs in his "The New Humanism" says, "An ideal is the most practical thing in the world, for it is a force behind action that must be reckoned with by the frankest materialist." The ideal which actuates the paper is not making of money, making a perfect artificial denture, or the ideal filling, or making a living, but rendering service, and making of ourselves men.

Progress is made only by assuming something and striving for it, leaving the old and established, the certainty, behind and striving for the unknown, the ideal.

This choice or ability to choose, is one of the striking distinguishing traits between man and the lower orders of animals. This ability to have an ideal is what Charles Ferguson calls the "affirmative quality of the intellect." This is the quality which begets aspiration, gives vigor and hope and realizes progress. This quality is offset by the passive quality, which is satisfied with letting "well enough alone," with conserving what we have it is purely animal: For illustration, the horse is satisfied with the same kind of food as the horse of a thousand years ago: The fish is still satisfied with the environment of ages and deposits its spawn where the greatest percentage of young is devoured before fairly started in life: The bird builds its nest after the fashion of its parent, the construction has not materially changed in the knowledge of man: The mouse still steals about our pantry even though all his predecessors have died for the trick: The gopher still burrows in the ground, though boys and dogs dig or drown them out: In other words they follow the line of heredity that negative side of life, which constantly tends to conserve, or drag back to the original type.

Not so with man who is endowed with that God given quality of "Affirmation." He is never satisfied with his diet, his environment, the habits of the family, the housing and care of self and family is always luring him on; he wants his children to have a better chance in life than he had, he wants to constantly reduce the hazard for them; he wants them to be greater and better than he. And woe unto him if he does not, for this feeling of unrest and aspiration is the very key which unlocks natures store-house of food and fuel and minerals and develops arts and sciences and mechanics and reveals to him the phenomena of the potentialities of nature and of life: It discovers to him the law of God's sublime "Drama of Life" which is "development."

That dentistry as an art is an old one, has been demonstrated by recent excavations of Etruscan tombs, how old would be difficult to say but several thousand years at least.

A wag has recently said that "The first historical record of dentistry which could be considered authentic was in the times of the tyrant Nero, who, becoming satiated with seeing christians beheaded and burned at the stake and torn to pieces by wild animals, when more victims were brought, gave orders that they be dragged to a dentist and their teeth extracted, the pain was so excruciating, so much worse than death, that the tyrant was never known to have another victim slain."

Thus we see that dentistry began saving lives a long time ago.

Art broadly defined is any service which contributes to the happiness or welfare of mankind. "All other service (in the language of a philosopher) is crime."

The dental art, with all art, has its origin in human need.

Back in the primitive life when all life was religious expression, and largely propitiating the wrath of gods, it is not at all improbable that when teeth ached, libations were poured, incantations sung, and sacrificial offerings made. May-hap some old woman (who was not very useful) became crazed with tooth-ache and was looked upon as bewitched, hence was offered as a sacrifice on some funeral pyre or altar to propitiate the wrath of God. This sort of performance might have gone on and probably did until some skeptical fellow, who had a tooth-ache, got it knocked out in a fight, thus learning that tooth-ache was not God's wrath, though the relief might be the other fellow's wrath.

The priesthood recognizing the danger to their business privileges, denounced the fellow as a heretic, but in spite of the denunciation the truth had come to light, and while the struggle against enlightenment continued long and fierce, other experiences of other people, together with the protest of a few skeptics who did not believe that prayers would cure tooth-ache, finally pushed superstition back, and the priests or medicine-men from denouncing the growing custom of getting of their healing art the extraction of teeth.

The foregoing is practically an epitome of the great struggle which has gone on in advancing civilization. Every step in progress and enlightenment has been fought by the priesthood in the name of religion, (as you will find by reading An-drew Dixon White's "Conflict between Religion and Science") but in reality because it would interfere with their privileges of saying prayers and getting paid for it, which had nothing to do with religion.

But in spite of this opposition, men with affirmative intellects have fought the sin of ignorance, have learned the laws of pain and developed the art of rendering service and alleviating suffering.

And for rapid strides dentistry has taken the lead. We have seen the evolution of extracting teeth on any occasion of pain, with a stone and stick, through the turn key and elevator periods to the modern forcep, and from the extraction of all teeth that pain to the extraction of deciduous, supernumerary and loose teeth. The extraction of other than these is becoming more and more rare, and in most cases today is due to nothing except the financial consideration; we can successfully treat and save practically anything in shape of a tooth that is solid in the jaw.

What a parody on our civilization which does not permit the preservation of all one's parts and faculties, providing he is willing to work, simply because of the unjust distribution of products.

We recognize that not more than half the dental work is now being done that ought to be done and it would require a much larger force of dentists than we now have to meet this demand, but these would be forthcoming if the conditions were right.

We have seen the evolution of artificial dentures from the carved ivory imitations, through the metal dentures with porcelain soldered on, the vulcanite, and celluloid plates with porcelain teeth, to the modern continuous gum case, which is the perfection of artificial substitution, but artificial just the same, and we look forward to the time when there will be none of them.

We have seen the development of tooth treating and saving, from camphor and liniment and creosote, and burning with a heated knitting needle, to modern methods of palliation intelligently applied, with knowledge that all tooth aches are not alike; the modern method of pulp extripation and root treating and filling, only twenty years ago was looked upon by many dentists as very doubtful treatment, reasoning that a tooth from which the pulp was gone was a foreign substance, and would soon be exfoliated. We have seen the filling of teeth pass from fitting a lead bullet into a cavity to gold rolled into soft cylinders and wedged in; the use of gutta percha, Royal Succedanium, (or amalgam); we have seen this compounded of every known metal that was cheap, including copper amalgam, and used in any and all teeth and cavities; we have seen it condemned because so abused and finally brought up to its present standard of excellence, which makes it a good tooth saver if handled with skill and used with discretion. We have seen the many preparations of cement including oxychloride, and oxyophorphates, and we still hope for something better in this line. We have seen the development of the use of cohesive gold which enables us to restore contours so perfectly. The systematic and scientific development of cavity preparation, which not only contemplates removal of decayed portion of tooth and replacement with artificial substitute, but considers withstanding various strains and stresses, and the extension of filling for prevention of future decay. And through the development of electric appliances has come the use of porcelain, that most artistic of artificial substitutes for missing tooth structure; it has its limitations, but its artistic effects, its insulating quality, the comfort of cavity preparation, its quality of sustaining frail tooth structure by aid of cement, renders it, to date, preeminently the artistic filling. Our great need at present for this kind of work is a cement without color.

We are and have been passing through a mechanical and scientific era, which has affected all lines and especially dentistry. What could be more wonderful than the mechanical development in dentistry in the past twenty-five years, from the old boiler to the modern vulcanizer with its automatic regulator, from the old set of three chisels to Black's set of 42? From the old spittoon which was practically impossible to clean, to the modern fountain cuspidor with its equipment, from the old barber chair to the modern operating chair and from the burr operated by hand or with cross-bow to the modern electric engine, are strides almost inconceivable in this short time. Mechanically we have arrived at the place where to want a thing means you can have it if you will pay for it.

The growth has been astounding, the development marvelous.

By dint of hard work, patient toil and sacrifice on the part of our predecessors, and colaborers, dentistry has been brought from the mere trade of an itinerary to the standard of the highest profession; it has been brought from a tooth destroying executioner to a beneficent, palliating, tooth-saving, health-saving, life-saving profession.

But we are not satisfied and are not going to be satisfied, and we propose not only to uplift our profession, and the "personnel" thereof but we intend to uplift humanity.

Among the things we desire and lend our influence to help along is our public school system; we desire to see it brought more and more into the line of the Froebel idea, wherein the child is taught to express rather than being impressed, so that when he takes up a life work he will know that he has adaptability. Then when he enters dentistry it will not be because he doesn't know what else to do, but because he can thereby express himself and help humanity.

Then we hope to see our college training which is now so far in advance of training for other professions, conducted by national universities, which will not have to consider expense and will procure the services of the best teachers, giving them an opportunity to progress even if it doesn't pay in dollars.

We also hope to see the curriculum prescribed, one which shall be the highest and best, which the knowledge of the day will suggest, and hope that the student will be given his degree as soon as he has done the prescribed work, thus giving him the benefit of application and conscientious work or special adaptability, on the other hand it will punish by detention him who wastes his time, while our present system punishes the good student instead.

Then we hope to see some other method of rewarding a man for original ideas than the present system of patents, which if he is able financially to protect simply permits him to tax the dentists and indirectly the people. Why not have a system of rewards, or medals, a roll of honor, a fellowship in the "Society of Affirmative Intellects." Any of these would be preferable to the doubtful realization of money after getting through courts, unless the man's ideal is "dollars," if so he should have no place in a profession. As a matter of fact there is compensation enough in the realization of good done to humanity.

One of the things which we as leaders in progress must strive for is a reorganization of society so that a few individuals will not grow rich at the expense of the many, so that each individual must work for what he has and no one or few will be allowed to monopolize nature's resources, they should belong to all and in justice do. Some of us have been laboring under the delusion that we can pass the crowd and scale the wall and win the goal, but the modern science of sociology has discovered that this cannot be done, the enlightenment must "leaven the whole lump," or all will fall together.

And this law, with regard to exclusion, applies within the profession the same as outside and it is my honest opinion that if the right hand of fellowship were extended to the young men entering the profession by the older practitioners and the societies, fewer of them would ever start upon an unprofessional career: most of them start because they feel it is necessary to get a living and would be very glad to give it up. We need more association and less exclusion. When we are in competition we need to see each other often to keep out the idea that the other fellow is knifing us, that he is unfair.

One of the things which as a profession we hope soon to inaugurate in a much larger degree is the proper education of children and parents as well, on the care of the teeth. It will of course take generations for it to become a habit, as it now is to wash before eating and sleeping, but the repeated and constant dinging away at these things has its influence. Care of teeth should be incorporated in our public school system, as gymnastics and other healthful exercises are.

As less and less teeth are lost we will find our profession becoming simpler, we will devote our time to the analysis of the fluids of the mouth of our patients, to the effects of various food substances, the effect of habits, as smoking, chewing tobacco, gum or aught else, the effect of variation of temperature, if any, the effect of moods, of laughter and tears, of love and hate, of hope and discouragement, in fact the effect of thought. We will strive to know the effects of all the environments and potentials of life upon the teeth, in relation to conservation. Our work will be preventive rather than reparative.

We will study the causes of disease uncertainly must get back of simply curing a disease, we must prevent, and then who knows but we may conduct a tooth insurtil we will even know the cause of pyorshea alveolaris, of neuralgia, carcinoma, etc., and study remedial agencies until we know how to prevent these troubles. We ance establishment for our patients, even now this is an important part of our business.

If we would make the future of dentistry what its present impetus and potentiality would imply, each must resolve that he will pay the price by sacrificing something of comfort and pleasure to the common cause of the profession and humanity. We must not rest upon the laurels won, and try only to conserve what we have gained for that is death. We must not be simply the passive foam upon the beach, inflated with a little false pride, but be a wave on the bosom of the great sea, a part of the great universal active whole.

THE VALUE OF DENTAL LEGISLATION.

By Dr. Anema, Batavia, Java.

(Abstract of paper read before the Fourth International Dental Congress, St. Louis, 1904.)

The interests of one individual are often opposed to the interests of another. The interests of a number of individuals belonging to the same class can, to some extent, be opposed to the interests of the rest of men. According to the well recognized principle, "The greatest good to the greatest number," the interest of the class must be subordinate to that of the mass, i. e., the general public; yet it has sometimes happened that the power of a class was so well organized that for a long time the interests of the minority predominated those of the majority.

We find this condition where a certain class has been long enough in power to make the laws of the country.

Allow me to ask you the following question: What do you consider the true value of dental legislation and what may the public expect from it?

In the case before us of the public interest vs. dental legislation, allow me to introduce as the principal factor making for ill "professional egotism," a spirit related to self-preservation of the class on one side and professional jealousies on the other. Here I must diverge a moment to make myself better understood.

To my mind there is no more doubt of the existence of professional egotism than there is of a certain kind of patriotism, called "jingoism," that preaches, "My country, right or wrong," or of that egotism which, by instinct and brute force, extinguishes weaker races. Of the latter we have in the history of mankind many instances. Of the former, I hope to give you an instance later on.

All these forms of egotism are brought about by instincts of the individual becoming active in the mass at certain times and intervals of its existence.

Among the strongest instincts of man is the one of self-preservation. It is a common truth that instincts are hard to deal with, if indeed they can be dealt with at all. They may become concealed to the inexperienced eye, covered by today's civilization, which often times is not much more than a social veneer, or by an amiable self-deceit of good-natured and well-to-do-people who believe that at least among their classes, instincts, and especially the one of self-preservation, are rudimentary. If, however, those less critical believe that the better classes look out mainly for the interests of others, then to my mind they are mistaken. The lesson given nearly two thousand years ago, "Love thy neighbor as thou lovest thyself," is still generally applicable, which implies its reverse that as a rule man looks out more for his own interests than for the interests of others. I will say, however, that there are no exceptions to this rule, such people as martyrs, where the instinct of self-preservation seems almost lost, but this specimen is very rare. This exception shows up more clearly the rule that says: "The instinct of self-preservation is stronger than the instinct of altruism."

When a man joins a profession he brings his instinct of self-preservation with him. This brings him often in closer contact with the profession, as he hopes that the profession may at a time be of some use to him.

The following is a direct proof of the existence of such an instinct. In a certain country a society of dentists, forming the editorial staff of a dental journal, desired to change the rules. One of the members proposed the following as the principle on which the new structure should be erected: "The society intends to serve the public by promoting dentistry in the most remote sense of art and science." His obvious reason, as he explained at the time, was to have as the leading motive the "interest of the public." After having been carefully considered, the proposition was rejected almost unanimously. So far as the thoughts of the opposition could be understood, the men who voted against the public interest proposition, feeling themselves representatives of their profession, considered it their duty not to look out, at least, not in the first place, for interests other than those of the body of men represented. The new rules are now based upon a foundation which can easily be laid bare and understood by looking upon the flag and emblem of some of our best dental journals which says, "devoted to the interests of the profession."

As dental journals are leaders and at the same time the voice of the profession, I consider these facts as valuable ones and as a proof that the dental profession needs devotion to its own interests. And as devotion to one (the profession) excludes devotion to another (the public) otherwise it is no devotion—what else can be the cause of the demand of this highest form of affection than the instinctive self-preservation of the class named, professional self-preservation.

In France a body of over two hundred and fifty dentists, the "*Syndicat des Chirurgiens-Dentists de France,*" use power to bring before court respectable foreign dentists for using legally acquired but foreign degrees of doctor. As their country does not furnish a dental doctor's degree, the dentists claim that the foreigners gain an undue reputation by the use of that title, thus doing harm to the interests of the local dentists.

That this feeling is more or less common to all lands was illustrated in a conversation bearing on educational matters I lately had with a dental professor of Europe. In replying to a doubt expressed by me as to the advisability of the bachelor's degree and the official medical studies, and the detriment they might work in debarring many from entering the school and in denying the blessings of dentistry to the masses, he said, jokingly, "Oh, we don't need any more dentists here."

After this I hope to be understood when I repeat professional egotism is an ill-natured feeling on one side to the self-preservation of the class and on the other to professional jealousy.—Items of Interest.

BOOK REVIEWS.

THE SURGICAL TREATMENT OF BRIGHT'S DISEASE.—By George M. Edebohls, A. M., M. D., LL. D., professor of the diseases of women in the New York Post Graduate Medical School and Hospital. This volume is intended to shed light upon the new, operative treatment of so fatal a malady as chronic nephritis, and its results.

For a complete systematic presentation of the subject the author thinks the time not ripe.

Seventy-two cases of operation are detailed, and of these it is claimed thirteen patients received no benefit, while fifty-nine experienced amelioration varying from slight and temporary improvement to complete cure.

These results the author believes establish surgery as at present the main, if not the only hope, of sufferers from a hitherto incurable malady. (F. F. Lisiecki, 9 Murray St., N. Y. Octavo. 331 pages, price $2.00.)

THE INTERNAL SECRETIONS AND THE PRINCIPLES OF MEDICINE.—By Charles E. de M. Sajous, M. D., Fellow of the College of Physicians of Philadelphia, etc., etc. Volume First, with forty-two illustrations. F. A. Davis Co., Philadelphia, publishers, 1903. 800 pages.

To say that this book is the result of most thorough research and careful compilation, and that it is exceptionally well gotten out mechanically, containing some of the best illustrations recently appearing in a medical work, is giving but a meagre idea of its value and its appearance.

Dr. Sajous' work as a writer is well known and this volume is fully up to his usual standard.

The twelve chapters in this first volume cover, Physiology of the Adrenals, viewed from the standpoint of Clinical Pathology—The Internal Secretions of the Adrenals in its Relations to the Respiratory Processes and the Composition of the Blood—In its Relations to the General Oxidation Processes—The Internal Secretions of the Thyroid and Thymus Glands in their Relations to the Adrenals—The Anterior Pituitary Body—The Thyroid Gland, and the Adrenals as Parts of an Autonomous System—The Adrenal System and Vasomotor Functions—The Adrenal System, the General Motor System, and the Pneumogastric Nerve—The Internal Secretions of the Pancreas and Spleen—The Adrenal and Vagal Systems in their Relations to Cardiac and Pulmonary Functions—The Posterior Pituitary as the Functional Center of the Nervous System, and as the Anterior Pituitary's Co-center in sustaining the Vital Processes—The Internal Secretions in their Relations to Immunity—The Internal Secretions and the Preservation of Life.

ORTHODONTIA AND ORTHOPAEDIA OF THE FACE.—By Victor Hugo Jackson, M. D., D. D. S., Professor of Orthodontia in the Dental Department of the University of Buffalo, etc., etc. With seven hundred and sixty original illustrations, 517 pages. Price, $5.00, net. Publishers, J. B. Lippincott Co., Philadelphia.

This work presents in detail, yet concisely and systematically the methods of the author in correcting irregularities of the teeth, together with a complete and original system for the orthopedic treatment of the face.

The author states that the principles are those applied in his own practice for many years, the results of which warrant the detailed description.

An examination of the book plainly shows the vast amount of time that Dr. Jackson has extended in research and experimentation. Probably every dentist occasionally has cases of orthodontia under treatment and this book will be found a valuable assistant.

SUNSHINE THOUGHTS FOR GLOOMY HOURS.—Prose and Verse. By George H. Chance, M. D., D. D. S. J. K. Gill Co., Portland, Ore., Publishers.

The close application and continuous confinement incident to the practice of dentistry is usually so trying to the nerves and bodily strength that few practitioners are disposed to literary work even upon technical subjects.

In this work, however, Dr. Chance has given us a very interesting little volume which will repay reading.

CHRISTUS VICTOR. A STUDENT'S REVERIE. By Henry Nehemiah Dodge, D. D. S. Fourth edition, revised and enlarged. G. P. Putnam's Sons, New York and London, 1903.

Like the book reviewed above this is a work in the field of general literature by a member of the dental profession.

This is a remarkably well written little volume and we feel sure that it will be interesting to anybody into whose hands it falls.

Members of the profession should secure a copy—it is well gotten up and will make a most acceptable present at the Christmas period to wife, mother or sweetheart.

A PLEASED PATIENT.

There's not much comfort in a name. Your patient doesn't care whether it's a cavity, an exposed nerve, or an ulcerated tooth. If there's pain, that's enough for the patient. And if there are Antikamnia and Codeine Tablets, that's enough for the dentist. Pain is often all there is to it. Stop the pain and you please the patient. Dentists when operating should administer one Antikamnia and Codeine Tablet every hour, giving one shortly before beginning the operation. One tablet before and one after extracting a tooth, will prevent the severe pain and consequent nervousness. Facial neuralgia, toothache and earache can be easily relieved with one tablet every hour or two.

THE CHRISTMAS DELINEATOR.

The December *Delineator,* with its message of good cheer and helpfulness, will be welcomed in every home. The fashion pages are unusually attractive, illustrating and describing the very latest modes in a way to make their construction during the busy festive season a pleasure instead of a task, and the literary and pictorial features are of rare excellence. A selection of Love Songs from the Wagner Operas, rendered into English by Richard de Gallienne and beautifully illustrated in colors by J. C. Leyendecker, occupies a prominent place, and a chapter in the Composers' Series, relating the Romance of Wagner and Cosima, is an interesting supplement to the lyrics. A very clever paper entitled "The Court Circles of the Republic," describes some unique phases of Washington social life is from an unnamed contributor, who is said to write from the inner circles of society. There are short stories from the pens of F. Hopkinson Smith, Robert Grant, Alice Brown, Mary Stewart Cutting and Elmore Elliott Peake, and such interesting writers as Julia Magruder, L. Frank Baum, and Grace MacGowan Cooke hold the attention of the children. Many Christmas suggestions are given in needlework and the Cookery pages are redolent of the Christmas feast. In addition, there are the regular departments of the magazine, with many special articles on topics relating to woman's interests within and without the home.

"LAUGH AND GROW FAT."

Life is such a serious business with the average mortal that an opportunity for a hearty laugh is more than welcome to most people. "A merry heart doeth good like a medicine," and so do the humorous features of that great metropolitan daily, *The Chicago-Record Herald.* The first thing that greets you on the first page at every issue is the humorous cartoon by Ralph Wilder, the well-known artist, that frequently tells more at a glance than could be conceived in a column of reading matter. Every issue contains also a humorous small story on the editorial page, and the "Alternating Currents" column, written by S. E. Kiser, one of the most popular humorous writers in the country. In addition to all these, the Sunday issue always includes a comic section, guaranteed to produce laughter.

GUM SECTION.—I am ready to admit that gum sections are lacking in some essentials, but between the two evils choose the lesser. The prejudice against them is due largely, I believe, to ignorance of their possibilities. I shall not, in these few lines, attempt to explain, only in a general way, how gum sections may be used instead of pink rubber. For a full denture, gum sections may be used above. All that is lost in occlusion can be overcome by using plain teeth below, but in no instance would I use pink rubber in a lower plate.

It adds nothing to its appearance in the mouth, but detracts from the durability. In the upper plates that are to articulate with the lower natural teeth and where there is no likelihood of the gums being exposed, the molars and sometimes bicuspids can be plain teeth. In such cases as this nothing is lost by using red rubber gums. You thus have a stronger and less clumsy denture. The principal objection to gum sections are the tendency to dark joints, checking, and the accumulation of secretions back of them—all of which can be prevented by proper grinding and waxing.—*Dr. O. H. Simpson, Extract West. Journ.*

HOME-MADE CLAMP AND MATRIXES.—Take an old-fashioned steel key ring, draw the temper, bend laterally at center to a right angle. Turn the ends in and down and file each to a point, not too sharp. Heat and temper to blue spring shade. From copper plate No. 40 gauge, cut strips of different widths and lengths and punch a line of holes in the ends of them. These can be adapted readily around different teeth and by the points of the clamp in the holes may be held firmly in place. This clamp can be operated with an ordinary rubber dam clamp forceps.—*Dr. J. F. Steele, Eagle Grove, Iowa.*

ADRENALIN FOR SENSITIVETY.—Apply adrelin chloride, 1-000, on a pellet of cotton for a few moments. Remove and place full strength formalin on another pellet of cotton to which apply a suitable-sized *hot* ball-burnisher. After about half a minute the most sensitive dentine can be comfortably excavated. Of course, care must be taken to protect the patient's eyes and air-passages from the formadehyde fumes.—*Dr. W. Kay, Stomatologist.*

NOW READY. FIFTY-FOURTH YEAR

THE PHYSICIAN'S VISITING LIST FOR 1905

Will be sent by mail, postage prepaid, to any address upon receipt of price, or may be ordered through any Bookseller, News Agent, or Wholesale Druggist.

DESCRIPTIVE CIRCULAR FREE UPON APPLICATION.

SIZES AND PRICES.

Bound in Strong Leather Covers, with Pocket and Pencil, Gilt Edges.

REGULAR EDITION

For 25 Patients weekly,			$1.00
50 " "			1.25
50 " "	2 vols.	January to June July to December	2.00
75 " "	2 vols.	January to June July to December	2.00
100 " "	2 vols.	January to June July to December	2.25

PERPETUAL EDITION, WITHOUT DATES.

No. 1. Containing space for over 1300 names. Bound in Red Leather $1.25

No. 2. Same as No. 1. Containing space for 2600 names, ... $1.50

MONTHLY EDITION, WITHOUT DATES.

☞ Requiring only one writing of patient's name for the whole month. Plain binding, without flap or Pencil, 75 cents; Leather cover, Pocket and Pencil, $1.00.

A plain, systematic method of keeping physicians' accounts,—pocket size, well printed, strongly bound, durable and convenient.

P. BLAKISTON'S SON & CO., 1012 WALNUT ST., PHILADELPHIA.

THE DENTAL SUCTION CO.

LOUDONVILLE, OHIO

Manufacture and sell the only absolutely sure and guaranteed suction worth using.

Order a box today. Price $1.00 for six and save profanity.

Dental-Suction Co., Loudonville, O. Oneida, N. Y., December 21, 1903.
Enclosed find check for $2.00 for which send me two boxes Suction chambers. They are working fine. Well pleased. Yours, DR. CARLTON ALVIN SMITH.

Dental-Suction Co., Loudonville, O. Port Deposit, Maryland, December 24, 1903.
Gentlemen:—Please send me two boxes of the Perfection Flexible Suctions I have used them and find they are the best I have used for the purpose. I used them on a plate that nothing else would have retained the plate in place. Enclosed find $2.00. Address, DR. H. W. HOOPES.

Dental-Suction Co., Loudonville, O. Mt. Vernon, N. Y., March 7, 1904.
Gentlemen:—Received the Suctions; the same was used for a patient that has had six sets made in different places. Came discouraged to me, tried one of your Suctions, left the office, telephoned to me after two days, "Delighted!" Yours truly, DR. E. D. COSTALES.

All First Class Dealers Recommend These
Specialties

Anti Glaze Strips (*reduced in price*) **30c per box — $3.50 per doz.**

Disks in boxes of 100, 600 or 1500, asst., 10c, 50c and $1.25 per box.

Manufactured by the Wilson process, the latest
and most improved process known.

Paragon New Departure Cement, per package of two colors, $1.50.

An excellent fine ground cement that gives excellent results
in Crown and Bridge Work.

Paragon Re-enforced Chamois Disks—*are made heavier around the mandrel head and are less apt to break*—**per card of one dozen $1.00**

Do you have trouble with your crowns and bridges turning brassy when cooled in water? Try our ***ARDENTINE*** for cooling them—it will put a beautiful lustre on your work—in neat two ounce package ***$1.00.***

If your dealer does not have these goods in stock order direct.

PARAGON DENTAL MFG. CO.,
RACINE, WIS.

"It didn't hurt a bit!"

WHY?

His Dentist gave him

"Antikamnia & Codeine Tablets"

When to Use Them

FIRST

To ease the nagging and shooting pains while operating; to quiet the nerves, and prevent the headaches and nausea which frequently follow operations, administer one Antikamnia & Codeine Tablet every hour. Give one before beginning operation

SECOND

One Antikamnia & Codeine Tablet given before and another one after extracting a tooth, will stop pain and allay irritability

THIRD

When a painful cavity exists, or a nerve or root is exposed, administer internally one or two Antikamnia & Codeine Tablets and fill the cavity with the powdered tablet, or apply it freely about the gums

FOURTH

For toothache, earache and facial neuralgia, administer one Antikamnia & Codeine Tablet every two hours until relieved

FOR SAMPLES AND LITERATURE, ADDRESS

The Antikamnia Chemical Company ✠ St. Louis, Mo., U. S. A.

DR. WILSON'S

Guard and Sponge Holder

A common sense device for use in grinding teeth. It is not only a disc shield but a moistener as well, using cotton roll, spunk or sponge. It will fit any handpiece and is not in the way of the fingers. Is very easily adjusted for large or small grindstones, also long or short mandrels and locks without set screws.

Price only 50 cents.

FOR SALE BY ALL DEALERS OR

DR. J. D. WILSON

DANVILLE - - ILLINOIS

Kester's Alloy is the result of twenty years' experimenting by Dr. P. J. Kester of Chicago. It has been used by prominent dentists for a number of years with so uniformly satisfactory results that it has now been placed on the general market.

It is the only alloy that is tempered and tested to zero. **It neither shrinks or expands.**

Perfect color — great strength — minimum amount of flow under stress — THE MOST PERFECT AMALGAM MADE.

Price: $2.00 per oz. -- 3 ozs. $5.00

For sale by dealers or

DR. P. J. KESTER,

A generous sample will be sent on request. **Masonic Temple, CHICAGO**

PUSTOLENE cures abscessed teeth at one sitting.

"Trade Mark Registered"

We guarantee Pustolene, if properly used, to cure an abscess or putrescent pulp at one sitting.

Pustolene has been thoroughly tested and is now used by more than 10,000 Dentists throughout the United States and Canada.

Pustolene is in paste form, always ready to use, and is composed of the most powerful germicides known; will not discolor the teeth and has a very pleasant odor.

Pustolene will, "if used as a pulp capper," relieve an aching pulp in a very few minutes and will return the pulp to its normal condition, there to remain permanently.

Pustolene has gained its reputation solely on its merits and has found its way to all parts of the Globe.

FREE—Upon request we will send free one sample and testimonials of Pustolene to any Dentist who has not had the pleasure of trying it.

For sale at all Dental Depots. Price $1.00—$1.25 in Canada and Foreign Countries.

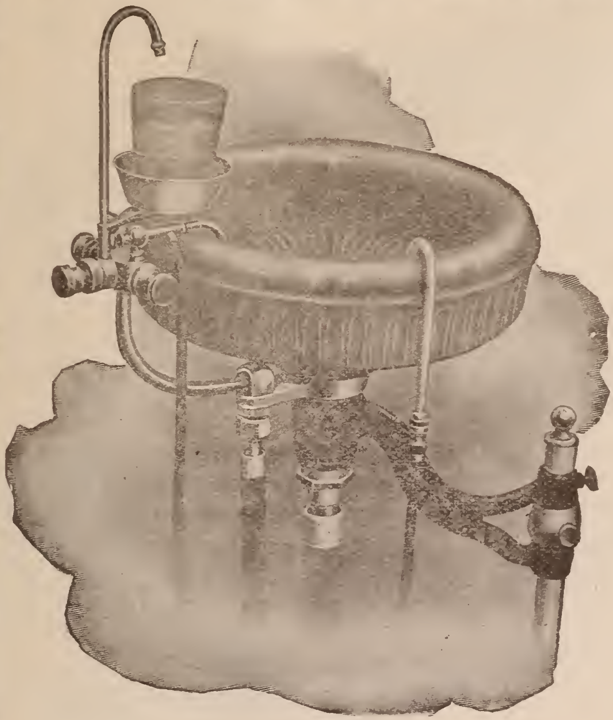
If your dealer does not have it, order direct and send us his name.

PREPARED ONLY BY

J. A. SPRAGUE & CO., Columbus, Ohio.

THE

Webster Fountain Spittoon



PRICES

Complete, for Wall Bracket, or any Chair, excepting High Low Gould and Crown,

$40.00

When Stand, High Low Gould, or Crown Chair Arm is wanted, extra,

$5.00

The above cut does not do full justice to our new Fountain Spittoon.

We have in the manufacture of this Spittoon embodied some new and valuable features, notably among them, the automatic **valves,** which are so constructed as to work **positive** every time, cannot get out of order and do not have to be **repacked.** No **depression** in bottom of bowl for **dirt** to settle in. No **holes** in bottom to **leak** or **weaken** the bowl. Bowl can be taken out, if desired, in **one minute,** by simply loosening one screw. And lastly, the simple and **perfect** way it is constructed.

It is manufactured in our **own factory,** under our personal supervision, by the most **competent** workmen that can be had.

It is made in the best **lead** metal glass, in beautiful Dark, Green, Ruby Red, or Clear Glass, and it is guaranteed for one year.

Send for Descriptive Catalogue.

Manufactured by

THE WEBSTER DENTAL CO.

566 MAIN ST., - BUFFALO, NEW YORK.

"THE OLD RELIABLE."

LAWRENCE'S RES NON VERBA Dr. A. LAWRENCE TRADE MARK AMALGAM.

This AMALGAM has received the endorsement of the Dental Profession at large for over forty-four years which would seem to render any remarks as to its excellence superfluous.

BEWARE OF FRAUDULENT IMITATIONS, whether from so called analysis or otherwise, and remember that Lawrence's Amalgam is always put up in a white lithographed envelope, covering a brown one containing the Amalgam, with Trade Mark on the lap of each, and both copyrighted.

THE S. S. WHITE DENTAL MANUFACTURING CO., Chestnut St., Cor. Twelfth St., Philadelphia, Pa., is sole Agent, and all communications from the TRADE should be addressed accordingly.

Prices: 1 oz. $3,—2 oz. $5.50,—4 oz. $10,—10 oz. $20. In 1 oz. and 1-2 oz. Packages.

Manufactured only by

AMBROSE LAWRENCE, M.D., 109 St. Botolph Street, Boston, Mass.

FOR SALE AT THE DENTAL DEPOTS.

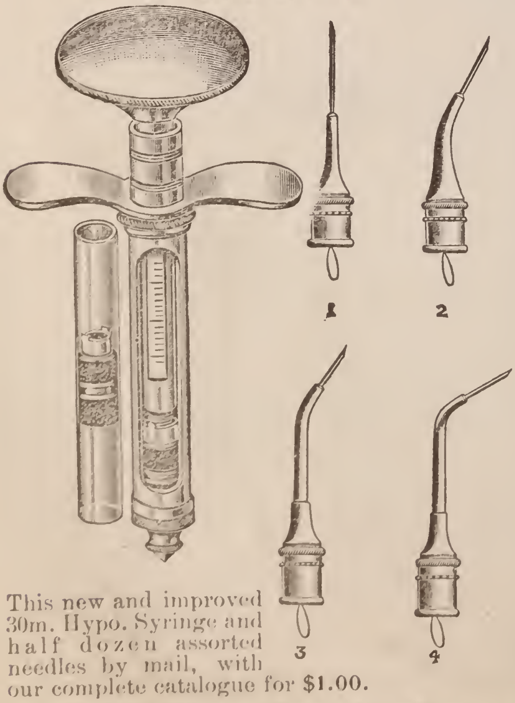
BURS : BURS : BURS : BURS

Sample order of two dozen for **$1.25.** First-class Burs—Stubs Steel, Machine Cut, Perfect Temper. Will give rates by gross or half gross with two-dozen order. Sample on request. Order to-day.

J. J. REED, Beloit, Wis.

BURS - BURS - BURS - BURS

NEW



This new and improved 30m. Hypo. Syringe and half dozen assorted needles by mail, with our complete catalogue for $1.00.

Physicians Supply Co.

Dept. A. Passaic, N. J.

The only Guaranteed non-breakable broach now used by the profession.

THE ACME

Our claim that the Acme is the finest and toughest nerve extractor has not yet been disputed. Remember it is not a reamer, but does the work where the ordinary broach does not reach, viz., in a small or tortuous canal clinging to the side of the walls, and extracting the nerve without any danger of breaking the broach. We are so convinced that they will prove satisfactory that you can return them and have your money refunded. **GET THE ACME.** Price $1.00 per dozen or $9.00 per gross. For sale by all dental depots or the sole manufacturers.

We also manufacture the Rex—a broach similar to the one they charge $2.50 per doz. We will also guarantee this to be equal to it at $1.50. Simply give us a chance to show you on two kinds of nerve extractors—The Acme and Rex—and we are certain to have you for our regular customer.

We take Scrap Gold and Filings in exchange allowing highest market prices.

St Louis Refining Co.

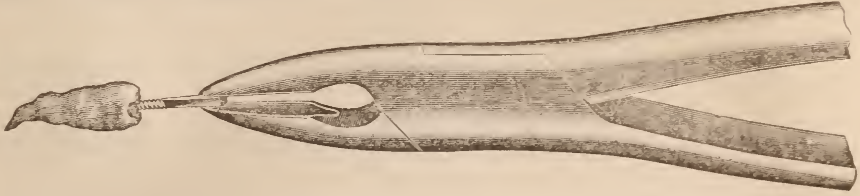
118 East 116 Street, New York

PLATINOID CROWN PINS

How to Extract Broken-Down Roots of Bicuspids and Laterals.

For extracting roots of lower bicuspids and upper laterals, where decay has extended to the process or beyond it, where the elevator could not be used, try a platinoid pointed screw and you will be surprised at the result. Wash debris out of the root, drill slightly into the sound portion, following the canal; put in your screw tightly, then extract by grasping the screw with narrow-beaked root-forceps, giving a straight pull. Do not luxate.—*Summary.*

Platinoid Crown Pins



Non-Corrosive Pointed Screws. Will cut their way into tooth structure.

$1.00 per doz., assorted or separate sizes

MANUFACTURED BY

MANHATTAN DENTAL CO.,

745 SIXTH AVE., NEW YORK

FOR SALE BY ALL DEALERS

Isn't a tried and proven article one that appeals to you?

Phenol Sodique

antiseptic, disinfectant, and antacid has been successfully employed by the Dental Profession for over thirty years. Stops hemorrhage, prevents fermentation, cures spongy gums, relieves pain. Diluted and used as a mouth wash preserves the teeth.

Hance Brothers & White

Pharmaceutical Chemists,
Philadelphia

You Want the Best

Dr. Gilmore's

EXCEL LOCAL ANAESTHETIC

For absolute painless extraction. Safest and best. Thoroughly Antiseptic.

Price 2 oz. $1.50, 6 oz. $3.60, 10 oz $5.00

This Anaesthetic is acknowledged by every Dentist who has tried it to be superior to all others on the market.

ABCESQUE

A positive and permanent cure for all abscesses and a fine root canal filler

In $1.00 and $2.00 packages.

EXCEL GOLD STARTER

For starting gold fillings. Saves time, pain and strain on the eyes.

In $1.00 and $2.00 packages.

EXCEL DEVITALIZING PASTE

For painless devitalizing of nerves. It is painless.

Price $1.00

ANTI-STRANGLE

To prevent strangling when taking impressions. Insures a perfect impression and comfort.

Price $1.00

LOCALINE

Is a strictly local anaesthetic and applied to the gums on cotton.

Price 1 oz. $1.00, 4 bottles $3.00, 8 bottles $5.00

PULPINE

Successfully saves inflamed and aching pulps, stops hemorrhages and after pains like magic.

Price $1.00; Powder or Liquid, 50c each

OBTUNDINE

Successfully obtunds sensitive dentine at once.

Price $1.00

The greatest advertisement a dentist can have is to assure his patients ease and comfort in the dental chair; price is no object and they will go hundreds of miles to have them do their work.

The experience of thousands of dentists who are using our preparations is that they are the best they ever used for what they are made to do.

READ ☞ **As our goods stand on their merits we will send any one of our preparations in full size package to any dentist on receipt of 50 cts. to cover postage and packing or all of them on receipt of 50 cts. for each one sent for, or we will send them prepaid on approval for the price given; considering this a better method of advertising than sampling, knowing that it will make the dentist and his friends customers ever after.**

If your dealer does not keep them, send to us for them and send us his name.
We refer you to any dental depot in N. Y. State as to our integrity and fair dealing.

MANUFACTURED BY

EXCEL CHEMICAL COMPANY,

1559 BROADWAY, BROOKLYN, N. Y., U. S. A.

SOLD BY LEADING DENTAL DEPOTS

STYPTICIN

In Stubborn Local Bleeding.
A convenient, effective and
prompt **HEMOSTATIC.**

Marketed as Powder and 3-4 grain Dental Tablets. Interesting reports will be mailed to Dentists on request.

Cocaine Hydrochlorate Merck

Large Crystals, Small Crystals (flakes), and Powder.

A product of the highest possible degree of ***Purity,*** answering the severest tests, yet costing no more than other Cocaine Hydrocholate.

The Merck Products can be obtained of all dealers.

Merck & Co.

NEW YORK ST. LOUIS

DeBow's Nerve Capping and Root Canal Filling

Used in Capping Live or Exposed Nerves

This nerve capping is one of the greatest boon for the dentist ever discovered. It enables the operator to handle with ease all cases of exposed or sensitive nerves. It is just what its name implies, a paste nerve capping to cover the nerve preparatory to filling. It does not kill the nerve but leaves it in a good healthy condition. Why kill nerves when you can cap them with better results. One bottle will cap about two hundred nerves. Try a bottle and you will have no further trouble with exposed nerves, or no more nerves to kill.

TESTIMONIAL.

I find the DeBow Nerve Capping will do all you claim for it. I consider it the finest thing in my cabinet and would not be without it. Yours respectfully,

F. R. Deming, D.D.S., 207-8 Bamlet Bldg., Detroit, Mich.

Ask your dealer for it, or price by mail $1.00, large sized bottle.

DR. S. W. DeBOW, DENTIST
LINDENVILLE, O.

DENTAL HINTS

The most practical and cheapest dental journal published. To the busy dentist who cannot afford the high-priced periodicals, this monthly fills a long-felt want, as it gleans from the best medical and dental publications the gist of most useful theory and practice, and presents it to its readers in short, easily-read articles. Published by the manufacturers of

The celebrated Teague's Depressed Discs, Impression and Investment Compound, Cavity Cap Discs, and who also carry a general line of Dental Goods at popular prices.

Price of subscription, per annum, 50 cents; foreign countries, 75 cents.
Lowest advertising rates of any journal. Write for prices. Address,

THE TEAGUE SUPPLY CO.,
222 JACKSONST. AUGUSTA GA.

Some Dentists prefer to use

Rutherford's "Low Heat" Modelling Compound

IN PLACE OF

PLASTER

This compound is readily worked, takes a perfect impression and is

ELASTIC

Sample 1-2 lb. box will be sent on receipt of 38c in stamps

Have you seen Rutherford's Crown Flasks?

Try our Sticky Wax and Temporary Stopping

ADRIAN SPEAR RUTHERFORD
289 PLEASANT AVE., NEW YORK CITY

Doctor, Have You Ever Tried Eclipse Alloy?

SINCE Eclipse Alloy has been on the market, we have had nothing but praise about its superior qualities. We can safely assert Eclipse Alloy has no superiors and few competitors. It sets quickly enough, so that filling can be finished in one sitting: it has great crushing strength, rarely breaking below 500 lbs. pressure it has an expansion of one ten thousandth part of an inch during early stages of setting. ***absolutely no shrinkage*** and retains a beautiful, silvery white color. We guarantee it perfect, as every batch of Eclipse Alloy is thoroughly tested before leaving our laboratory.

Your dealer can supply you. If not, send for 1/8 Ounce Free sample, and be convinced that you have at last found the Alloy that will give you perfect satisfaction. Price, $1.50 Per Ounce.

The Eclipse Dental Specialty Co.

7 and 9 Warren St., New York City, N. Y.

WM. HAHN

220 WASHINGTON STREET, CHICAGO

Manufacturer and Repairer of

Dental Instruments and Specialties

BROACHES

Barbed ½ doz. 50c.

Progressive ½ doz. 75c.

The Old Reliable—all kinds and sizes. The best that skill and study can produce. Try the "Progressive" (Screw-Cut) for small and difficult canals.

Superior Dental Finishing Strips

Registered August 12, 1902, No. 9364

CARBORUNDUM—Made in three grits; Coarse, Medium, Fine, and in three widths: Broad, Medium, Narrow, or Assorted, as desired, seven inches long.

DIAMOND—Made in one grit only, and is for finishing and putting the final polish on the filling.

35 cts. per box of one gross or three boxes $1.00

A Free Sample for a postal card

Superior Dental Strip Co.

WATERLOO, N. Y.

Good Stationery

Is Good Advertising

BUSINESS AND SOCIAL
STATIONERY AND CARDS
WEDDING AND BUSINESS
INVITATIONS AND ANNOUNCEMENTS

Samples and Quotations willingly furnished

The American Embossing Co.,
10-16 LOCK ST., BUFFALO, N. Y.

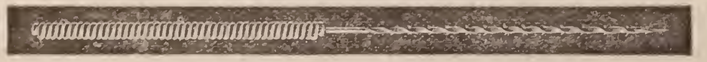
"DAYTON BROACHES"
(INDESTRUCTIBLE)

ARE THE BEST

THEY CANNOT BREAK

STRAIGHT

THEY ARE EFFICIENT



SPIRAL

DO YOU USE THEM?

TAPERED

Price, All Styles, All Sizes, $1.00 Per Doz.

DAYTON DENTAL SUPPLY COMPANY
S. W. Cor. 5th and Jefferson Sts., Dayton, O.

When a comparatively new material can SUPERSEDE the old standbys in the practice of EXPERIENCED DENTISTS, the argument resolves itself into a single word,

MERIT

This is exactly what RAMESITE CEMENT is doing.

The hundreds of dentists who have tried RAMESITE CEMENT, thus far, have duplicated and continue to duplicate their orders.

After you have tried all other cements
Try Ramesite

After all other cements have failed
Try Ramesite

If you have a piece of bridge work that persists in coming off
Try Ramesite

If you have a Logan or Richmond crown to set
Try Ramesite

If you have to fill a broken down molar—nothing but the walls of enamel left
Try Ramesite

If you have made a nice porcelain inlay and wish it to remain "A thing of beauty and a joy forever"
Try Ramesite

If you wish a durable filling
Try Ramesite

In filling children's teeth
Try Ramesite

In a wet cavity
Try Ramesite

If you are careless in the manipulation of your cement DON'T
Try Ramesite

RAMESITE is not a Careless Man's Cement.

Price per Package of Two Colors, $1.50. Write for Free Sample Package.

Manufactured ... by **H. G. KNAPP,**

219 SIXTH STREET, - - - PITTSBURG, PA.

CHAUNCEY A. FLOWER'S

New Process Gold Cylinders

Is Guaranteed to be the best all-round Dental Gold in the world

Five reasons why YOU should give it a trial

FIRST—Because it is the purest Gold on the market.

Second—Because it is the easiest working Gold.

Third—Because it is perfectly adapted for any kind of filling.

Fourth—Because it requires NO ANNEALING.

Fifth—Because it requires no special kind of Instruments.

It is soft and cohesive, but when properly condensed contours perfectly, finishes hard and takes on the finest polish.

In fact is just what all good Dentists are looking for.

The best Quality and Easy Working combined.

PRICES--1-16th, $2.00; 1-8th, $4.00; 1-2 ounce, $15.00; one ounce, $30.00. Cash must accompany all orders.

C. A. FLOWER, 145 S. McKean Street, Kittanning, Pa.

Do You Sterilize

As much as you Want to?

As much as you Ought to?

Our Electric Sterilizer

IS

Convenient, Attractive, Durable
Economical, Reasonable

Always at hand where your patient can see it

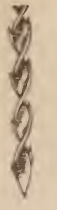
The Best Sterilizer Made

ADDRESS,

ELECTRIC STERILIZER CO.,
ST. PAUL, MINN.

Can Be Tied In a Knot

CAN NOT

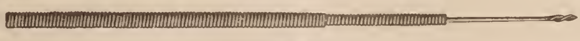


BREAK

"MILES"

BROACHES

75c. (Patented) $1.00



PATENTED

Price per set of Three, 50c.

The Miles Steel & Tool Co.,

Middletown, Ohio, U. S. A.

Dr. J. C. Graft's New Flexible Singerpore Disks

in Emery and Carborundum, are particularly useful for trimming natural teeth and roots for crown work, for grinding porcelain crowns, inlays, enlarging spaces between teeth, etc. These disks are very thin, rapid cutting, and flexible and both sides are alike.

Price per dozen, 50 cents

Terraplastica—A moulding compound—for taking impressions, casting metal dies, for rubber work—for investing gold work—absolutely has no superior.

Other Specialties—Perfect Impresion Varnish—Superior Base Plate—Improved Dental Plaster—Bridge Repairing Pliers—are essential adjuncts to every den laboratory. Send for ourBooklet.

TERRAPLASTICA MFG. CO.

5 W. PARK ST., NEWARK, N. J.

Dentist's Ledger Outfits

Prices in reach of all. Equipment Practical
Designed by Business Engineers

Holds from one sheet to two thousand and in perfect alignment. Do the others you have seen?

Victor End-Lock Loose-Leaf Sectional Post Binder.

Leaves always carried in stock in standard form. Any forms prepared on short notice

This is not the only labor-saving device we have to offer you, but if you will write us telling us the condition you are working in and under we will outline a system for you and submit it with prices. No charge for it unless it suits and then only for the supplies.

PRICES OF STOCK OUTFIT
1½ bound canvas binder
1 A to Z Index ....
300 Stock Leaves.... . } $7.50
WRITE US FOR PARTICULARS

H. C. Miller Company
Business Engineers, Consulting Accountants,
Manufacturing Stationers
2-6 Broadway, Milwaukee

H. C. MILLER & CO.,
Milwaukee, Wis.

Please send sample sheets of Dentist's Ledger and see my letter for inquiries.

....

....

Astringent,
Antiseptic,
Alkaline,

Liquid,
Powder,
Paste.

SOZODONT

Established 1848.

OWING to diverse conditions and tastes, different classes of patients require different cleansing and prophylactic agents for the oral cavity. Some require a mouth wash (with or without detergent properties): others a powder (which should be free from harsh grit); while a third class need that which is fast becoming the most efficient and economical—a Paste.

The SOZODONT preparations cover the whole field. They are not only efficient but delightfully pleasant as well, thus insuring faithful use.

Information and samples cheerfully furnished.

HALL & RUCKEL,
NEW YORK CITY.